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OBSTETRIC AMNESIA, ANALGESIA AND ANESTHESIA

THEIR RELATIONSHIP TO SUDDEN DEATH
IN LABOR

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No topic in obstetric procedure is receiving more despread attention than amnesia and analgesia. Those who practice the art of midwifery are well aware of this fact, for the journals are filled with reports of new methods and assorted combinations, and every patient who comes to register wants first to know what will be done to eliminate the pangs of labor. She expects to fall asleep with the first pain and awake with the baby in her arms, and she is sure from her reading that this is not only feasible but her rightful privilege.

By taking it on themselves to adopt each new obstetric method of analgesia or anesthesia and announce it as a panacea for women's suffering, lay periodicals play a major rôle in producing this misconception. Their articles are a medley of false impressions and incomplete truths, but they are widely read and exert sufficient popular appeal to force on the profession methods of management that may prove innately unsafe or poorly adapted to peculiar localities and conditions of practice.

Then too, enthusiastic reports in professional journals lead the physician to employ in his obstetric practice methods of analgesia the difficulties and dangers of which are insufficiently emphasized. At the height of the popularity of a new method, medical reports seem persistently favorable. Only when the method is taken on to the centers of propagation and put to general use do discrepancies and questions arise. This is true of the present widespread use of the barbiturates for the purpose of inducing deep amnesia. While reports of the method have been favorable,¹ individual obstetricians are beginning to question its efficacy, and unfavorable reactions and peculiar deaths are being reported.

So impressed have I been by the number and the nature of anesthetic deaths reported before the Maternal Welfare Committee of the Philadelphia County Medical Society that I have undertaken to

determine what part analgesia plays in maternal mortality in that city and to compare the various methods of analgesia on the basis of their safety and efficacy in general usage. The study is based on a five year period, 1931 to 1935 inclusive.

Inspection of the results over this period of time reveals that the general mortality rate has decreased 24 per cent, that this decline is accounted for by a 49 per cent decrease in nonpreventable death rate, and that the preventable death rate has remained uniform (table 1). In the instance of maternal death during labor or within twenty-four hours thereafter there is no lessening of the general rate; the nonpreventable death rate has decreased by 49.3 per cent, and the preventable rate has risen 52.5 per cent; the death rate attributable to errors in judgment and technic on the part of the physician has risen 108.5 per cent, and the proportion of maternal deaths due to these errors has increased 107.3 per cent (table 2).

From these figures one receives the impression that mistakes in judgment and errors in technic as represented by deaths in the intrapartum period account for the slowness of improvement in obstetric practice. This observation is supported by a study of the trend in all other deaths. In all other maternal deaths there is a general decrease of mortality rate of 28.9 per cent, a decrease in the nonpreventable death rate of 48.6 per cent, a decrease in the preventable death rate of 11.1 per cent, and a decrease in the death rate due to errors in judgment and technic on the part of the physician of 41.4 per cent (table 3).

There is an improvement then in all phases of obstetric practice as represented in the group of 876 deaths, but in the smaller group of 220 intrapartum deaths there is such a lack of advancement that no net progress in preventable death rate for general obstetric practice is demonstrable (table 4).

Apparently something is wrong with methods of management in labor, and saddest to relate, whatever is wrong is going more astray with each succeeding year. Probably a number of matters are at fault, but of this complex problem I believe that obstetric amnesia, analgesia and anesthesia constitute an important portion.

In formulating an opinion as to the acceptability of an anesthetic or analgesic method the physician must have in mind the following points: first, safety; second, the amnesic, analgesic or anesthetic properties; third, effect on contractions of the uterus; fourth, advantages or disadvantages in special cases; fifth, untoward reactions and idiosyncrasy; sixth, constitutional effects; seventh, effect on the fetal respiration at birth.

With these considerations in mind let us take note of the agents that were used in the 220 intrapartum deaths, compare their good and bad features and determine the part they played in death (table 5).

Dr. Philip F. Williams, chairman of the Maternal Health Committee of the Philadelphia County Medical Society, gave his permission to use the committee's records; Dr. T. Ruth Hartley Weaver gave her generous assistance in collecting the data.

1. (a) Daichman, I., and Shir, M.: Sodium Amytal and Morphine in labor, *Am. J. Obst. & Gynec.* 31: 515-517 (March) 1936. (b) Galloay, C. E., and Smith, P. H.: A Study of Nembutal and Scopolamine in the Relief of Pain in Five Hundred Deliveries, *ibid.* 29: 207-215 (Feb.) 1935. (c) Irving, F. C.; Berman, S., and Nelson, H. B.: Barbiturates and Other Hypnotics in Labor, *Surg., Gynec. & Obst.* 58: 1-11 (Jan.) 1934. (d) Tritsch, J. E., and Brown, R.: Barbiturates in Primiparous Labors, *Am. J. Obst. & Gynec.* 29: 700-710 (May) 1935.

ETHER

Ether, with or without nitrous oxide-oxygen induction, was administered by inhalation to 108 of the patients who died. In one instance it was indicated as the real cause of death and in another as a possible cause. In both cases it was poorly administered. Bad judgment was shown in its selection as an anesthetic agent in one additional case.

Ether appears to be still the most widely used and possibly the safest of anesthetic agents in obstetric

TABLE 1.—Maternal Deaths in Philadelphia 1931-1935

	1931	1932	1933	1934	1935	Total
Live births.....	33,773	32,093	29,528	29,751	29,988	155,133
Maternal deaths.....	269	267	181	198	181	1,096
Maternal death rate per 10,000 live births.....	79	83	61	66	60	70
Nonpreventable deaths.....	126	116	68	62	57	429
Per 10,000 live births.....	37	36	23	21	19	27
Percentage of total maternal deaths.....	46.9	43.5	37.6	31.4	31.5	39.2
Preventable deaths.....	143	151	113	136	124	667
Per 10,000 live births.....	42	47	38	45	41	43
Percentage of total maternal deaths.....	53.1	56.5	62.4	68.6	68.5	60.8
Deaths from error in judgment or technic on part of physician.....	70	75	57	59	56	317
Per 10,000 live births.....	21	23	19	20	19	20
Percentage of total maternal deaths.....	26	28	31.4	29.7	28.9	28.9

Comparison of Rates in 1931 and 1935

Maternal death rate.....	{ 1931—79 1935—60 }	Decrease of 24%
Nonpreventable death rate.....	{ 1931—37 1935—19 }	Decrease of 48.9%
Preventable death rate.....	{ 1931—42 1935—41 }	No change (1%)
Death rate from errors in judgment and technic on part of physician.....	{ 1931—21 1935—19 }	Decrease of 9.5%
Proportion of maternal deaths due to errors in judgment and technic on part of physician.....	{ 1931—26% 1935—28.9% }	Increase of 11.1%

practice. It may be employed for analgesic effect in early labor in the Gwathmey technic, as "whiffs" during the second stage, or pushed to complete anesthesia by deep inhalation. It does inhibit the activity of the uterine musculature; its free administration may stop labor pains and its long continuance predispose to relaxation and postpartum hemorrhage.

It has the advantage of simplicity of technic, ease of administration and wide margin of anesthetic safety. It is of essential value for types of delivery that require relaxation of the uterus; namely, decomposition of the breech and internal podalic version and extraction. It can produce greater relaxation than is necessary for low forceps.

Its administration is singularly free of untoward reaction and idiosyncrasy, although patients vary decidedly as to degree of postanesthetic nausea, vomiting and prostration. Its use for inhalation is to be avoided in instances of pulmonary disease. Administered by the open drop method, ether does not interfere with oxygenation of the fetal blood, and only in prolonged and deep anesthetics does anesthetization of the fetal respiratory center occur.

NITROUS OXIDE-OXYGEN

Nitrous oxide-oxygen anesthesia was employed thirty-four times. In one instance the anesthesia was badly taken (or badly given) and death was attributed to its

action. In nine cases bad judgment was shown in its selection as the anesthetic agent.

This form of anesthesia has wide usage and great value. Given by a trained anesthetist the margin of anesthetic safety, while not as great as in the case of ether, is nevertheless ample. During the second stage of labor it may be given for short periods with each labor pain and finally pushed to deep anesthesia for delivery.

It has little effect on the contractility of the uterus and predisposes to postpartum hemorrhage only when insufficient oxygen is administered. The rhythm of labor continues throughout, the patient regaining consciousness quickly between pains. As an agent of anesthesia it is of particular value in the types of delivery in which relaxation of the uterus is neither essential nor desired—cesarean section, forceps and spontaneous delivery. Its use is to be avoided when relaxation of the uterus is essential for safe manipulation; e. g., in decomposition of the breech and internal podalic version. It was in disregard to this rule that bad judgment was shown in the selection of gas for 26 per cent of its administrations; in a number of such instances, rupture of the uterus was discovered at the conclusion of labor.

There appears to be very little idiosyncrasy to gas, although some patients take it much better than others. Since it is necessary in obstetric anesthesia to keep the patient "pink," ether has to be given as a complemental agent more often than in other fields of surgery. It is

TABLE 2.—Maternal Deaths During or Within Twenty-Four Hours After Full Term or Premature Labor (28-40) Weeks 1931-1935

	1931	1932	1933	1934	1935	Total
Maternal deaths.....	44	61	39	37	39	220
Per 10,000 live births.....	13	19	13	12	13	14
Nonpreventable deaths.....	24	32	13	12	11	92
Per 10,000 live births.....	7.1	9.9	4.4	4.3	3.6	5.8
Percentage of maternal deaths.....	54.5	52.5	33.3	32.3	28.2	41.3
Preventable deaths.....	20	29	26	25	28	128
Per 10,000 live births.....	5.9	9.0	8.8	8.4	9.0	8.2
Percentage of maternal deaths.....	45.5	47.5	66.7	67.6	71.8	58.7
Deaths from errors in judgment or technic on part of physician.....	12	25	19	21	22	99
Per 10,000 live births.....	3.5	7.8	6.4	7.0	7.3	6.3
Percentage of maternal deaths.....	27.2	40.9	48.7	56.7	56.4	45

Comparison of Rates in 1931 and 1935

Maternal death rate.....	{ 1931—13 1935—13 }	No change
Nonpreventable death rate.....	{ 1931—7.1 1935—3.6 }	Decrease 49.3%
Preventable death rate.....	{ 1931—5.9 1935—9.0 }	Increase 52.5%
Death rate from errors in judgment and technic on part of physician.....	{ 1931—3.5 1935—7.3 }	Increase 103.5%
Proportion of maternal deaths due to errors in judgment and technic on part of physician.....	{ 1931—27.2% 1935—56.4% }	Increase 107.3%

of great importance that sufficient oxygen (at least 20 per cent in long anesthetics) be administered with nitrous oxide; otherwise the fetus in utero may suffer from anoxemia during the administration and be born in a state of apnea. Resuscitation in such cases is difficult.

Nitrous oxide and oxygen anesthesia is expensive. Since the apparatus for its administration is rather cumbersome and the services of a trained anesthetist are essential, the method is confined largely to hospital practice, where it occupies an important position.

EMPLOYMENT OF THE GWATHMEY METHOD OF
ETHER-OIL ANESTHESIA

The rectal injection of an ether-oil mixture as described and advocated by Gwathmey was considered as a possible factor in death in three instances and was injudiciously employed in one of seven cases. The circumstances of the three cases were somewhat similar: rather long labor, more than ordinary bleeding during and immediately after the placental stage, a sluggishly contracting uterus, further bleeding and a gradual lapse into shock when the patient was returned to bed. All three deaths might have been avoided by more efficacious treatment of the patient as the symptoms appeared.

The Gwathmey method of anesthesia, while not so popular as it was five years ago, still occupies a place of importance in the obstetric armamentarium. It, like ether anesthesia, has a wide margin of safety if the patient is watched carefully. Its originator intended it as a method of analgesia for use in the first and

TABLE 3.—*Maternal Death Rates from All Other Conditions of Childbirth 1931-1935*

	1931	1932	1933	1934	1935	Total
Maternal deaths.....	225	206	142	161	142	876
Per 10,000 live births.....	66	64	48	54	47	56
Nonpreventable deaths.....	102	84	55	50	46	337
Per 10,000 live births.....	30	27	18.6	16.7	15.4	21.2
Percentage of maternal deaths.....	45.3	4.07	38.7	31.0	32.4	38.4
Preventable deaths.....	123	122	87	111	96	539
Per 10,000 live births.....	36	38	29	36.6	32	35
Percentage of maternal deaths.....	54.7	59.3	61.3	69.0	67.6	61.6
Deaths from errors in judgment or technic on part of physician.....	58	50	38	38	34	218
Per 10,000 live births.....	17.5	15.2	12.6	13	12.7	13.7
Percentage of maternal deaths.....	25.3	24.3	26.7	24.2	23.9	24.8

Comparison of Rates in 1931 and 1935

Maternal death rate.....	{ 1931-66 1935-47 }	Decrease 28.9%
Nonpreventable death rate.....	{ 1931-30 1935-15.4 }	Decrease 48.6%
Preventable death rate.....	{ 1931-36 1935-32 }	Decrease 11.1%
Death rate from errors in judgment and technic on part of physician...	{ 1931-17.5 1935-12.7 }	Decrease 41.4%
Proportion of maternal deaths due to errors in judgment and technic on part of physician.....	{ 1931-25.3% 1935-23.9% }	Decrease 5.5%

second stages of labor. For this purpose it is comparatively successful. It is only slightly effective as an amnesic.

The ether in the rectal mixture, like ether by inhalation, has a tendency to lessen the frequency and force of uterine contractions. An effort has been made to offset this by the addition of quinine; but even so labor is sometimes prolonged and the postpartum retraction of the uterus impaired. I am of the opinion that its administration increases quite decidedly the hemorrhage during the placental stage and that, if this stage is not carefully supervised, serious postpartum bleeding may occur.

This method is particularly well suited to the long labor of some primigravid patients. Without the morphine, but supplemented with pentobarbital sodium, paraldehyde or chloral, it makes a splendid analgesia for short labors. It is associated with no untoward reactions or constitutional effects on the mother. The ether portion of the technic has only limited effect on the respiration of the new-born child, but the morphine,

if given inadvertently too near the time of delivery, may produce troublesome narcosis of the fetal respiratory center.

CHLOROFORM

Chloroform anesthesia was employed in three patients who died of various causes. It was assumed to play a part in the death of one patient and was injudiciously chosen as an anesthetic agent in a patient with eclampsia.

TABLE 4.—*How Is the Medical Profession Fulfilling Its Responsibilities in the Various Groups of Maternal Deaths? 1931 versus 1935*

	All Maternal Deaths	Maternal Deaths During or 24 Hours After Delivery	All Other Maternal Deaths
Maternal death rate.....	Decrease of 24%	No change	Decrease of 28.9%
Nonpreventable death rate.	Decrease of 48.9%	Decrease of 49.3%	Decrease of 48.6%
Preventable death rate.....	No change (1%)	Increase of 52.5%	Decrease of 11.1%
Death rate from errors in judgment and technic on part of physician.....	Decrease of 9.5%	Increase of 108.5%	Decrease of 41.4%
Proportion of deaths due to errors in judgment and technic on part of physician	Increase of 11.1%	Increase of 107.3%	Decrease of 5.5%

I have used chloroform so few times that I am incompetent to discuss its effects, its advantages or its disadvantages. The English still like their chloroform, either for momentary analgesia or more deeply for obstetric anesthesia. The South has never given up the use of chloroform, although ethylene is now being used with favor in many of the medical centers. One fact is known—the long administration of this agent will cause degeneration of the liver, and when liver damage is already existent, as in preeclampsia, the employment of chloroform is inexcusable.

TABLE 5.—*Amnesics, Analgesics and Anesthetics Employed for Patients Who Died During or Within Twenty-Four Hours After Labor*

Agent Used	Number of Deaths in Which Agent Was Employed	Primary Cause of Death	Possible Cause of Death	Poorly Selected
Ether or nitrous oxide-oxygen-ether	108	1 (>1%)	1 (>1%)	1 (>1%)
Nitrous oxide-oxygen.....	34	0	1 (3%)	9 (26%)
Gwathmey	7	0	3 (42%)	1 (14%)
Chloroform	3	0	1 (33%)	2 (66%)
Spinal	4	2 (50%)	1 (25%)	1 (25%)
Local	4	0	0	0
Pentobarbital sodium.....	11*	2 (18%)	4 (36%)	2 (18%)
Amytal	8*	0	2 (25%)	2 (25%)
None	40	0	0	0

* Possibly more; these deaths are being subjected to further study.

SPINAL ANESTHESIA

In four of the maternal deaths spinal anesthesia was administered. It unmistakably caused the death of two of these patients; in a third, death seemed more likely the result of it than of the other factors present. The fourth case was a poor risk for spinal injection.

It is the consensus of enlightened medical opinion that spinal anesthesia is a dangerous anesthetic in obstetric practice. It depresses blood pressure when blood pressure is already low, it relaxes the vascular tree when

the latter is already relaxed, it impairs respiration when a normal respiratory excursion and complete oxygenation of the blood are essential, it necessitates placing the woman in the recumbent position with the head dependent when already the flat level position may be productive of syncope, and it trebles the likelihood of shock when intra-abdominal tension falls with delivery of the fetus.

I can see no reason why one should select spinal anesthesia for an obstetric operation, particularly if one has reviewed the literature on the subject and is familiar with the fearful mortality connected with it. However, now and then there comes a wave of popularity for spinal anesthesia and those physicians who have not experienced, or who do not remember, the fatalities of the last one are caught in its flood.

Contractions of the uterus continue normally under spinal anesthesia and retraction of the uterus follows the expulsion of the fetus and placenta promptly and firmly. The anesthetic, however, interferes with the expulsive action of the abdominal muscles; under its influence the patient never advances spontaneously beyond the first stage of labor. The drug has no effect on the respiratory center of the fetus.

LOCAL ANESTHESIA

Local anesthesia has no detrimental effect on the constitution of the patient or the mechanism of labor. It is the least depressing of all methods and should occupy a more extensive place in obstetric practice than it does at present.

Its action is confined to the tissue in which it is injected. It does not weaken the contractions of the uterus, delay labor or predispose to postpartum hemorrhage. Retraction of the uterus after the third stage and involution during the puerperium approach more nearly the natural than under any other form of anesthetic.

Some years ago I compared the results in a series of fifty primiparas whom I delivered under the routine anesthetics—gas, and gas-ether—with an equal group I delivered with morphine-scopolamine analgesia and infiltration of the perineum with procaine hydrochloride. Episiotomy and immediate perineal repair were performed as a routine in each group. Without going into the details of the study, it may be stated that the lessening of blood loss in the local anesthesia group was amazing, and the rapidity of delivery of the placenta, the quickness of the baby's cry and the smoothness of convalescence were most gratifying.

Because of these advantages, local anesthesia is a method peculiarly well adapted to the situation in which loss of blood, relaxation of the uterus, fall in blood pressure, irritation of the lungs or burden on the heart would be fatal. For this reason its use is indicated in cesarean section for premature separation of the normally implanted placenta, cesarean section in the presence of poorly compensated heart disease, and pulmonary disease. It may also be employed to advantage in the vaginal delivery in cases complicated with heart or pulmonary conditions—morphine analgesia during labor and free infiltration of the perineum at delivery permitting of spontaneous delivery, episiotomy, immediate repair and even low forceps. Gellhorn² has so advocated its use for many years.

In all these conditions the surgeon has the pleasure generally of seeing his patient leave the operating room

in as good condition as she enters it. If an obstetrician learns to use local anesthesia it will stand him in good stead on many an occasion. Five-tenths per cent solution should be employed and it should be injected freely. The method is not sufficiently analgesic for routine use, but it fits the situation perfectly in many complications.

THE BARBITURATES

My records reveal that in six of the eleven deaths in which pentobarbital sodium was used death was attributable to the analgesia—quite evidently in two and quite probably in the other four. In two additional instances the choice of the analgesic method, in view of the patient's pulmonary condition, seemed singularly bad. In the eight instances of amytal administration there were two in which the analgesia was quite possibly the cause of death and two in which the selection of the method seemed injudicious.

While it is difficult to say certainly that the analgesic method was responsible for the fatalities, the evidence is preponderantly in that direction. The suspected cases had these points in common: there was no other factor of enough significance to account for fatality; all the patients succumbed with a peculiar type of cyanosis and respiratory depression, rapid thready pulse and shock without hemorrhage that failed to react to the usual methods of treatment. In several instances the deaths were ascribed to heart failure or to pulmonary embolism. If this was the true diagnosis, it is peculiar that so many instances should have occurred in the barbituric acid group. Of the frequently made diagnosis "pulmonary embolism," Kerr says: "There is little doubt that a considerable number of deaths are attributed to pulmonary embolism which should really be relegated to trauma or shock or both. The diagnosis of embolus is a simple explanation and saves the conscience of the person in attendance."

The barbiturates are presumed to have a fairly wide margin of therapeutic safety. This is said to be the case particularly of pentobarbital sodium.³ The reports of Irving¹ and of Galloway¹ and Daichman¹ reveal no maternal anesthetic death. There seems, however, to be a wide range of susceptibility to the action of the drug. For instance, Galloway describes one case in which 22 grains (1.4 Gm.) of pentobarbital sodium was administered in the course of labor without any apparent effect, and the patient at the conclusion stated that she thought she had had a very hard time. On the other hand, Willcox⁴ emphasizes the importance of peculiar susceptibility to the drug and states that he has seen a number of cases in which sudden collapse, respiratory depression and death from bronchopneumonia occurred when only 3 grains (0.2 Gm.) was administered. He particularly opposes the use of the drug as a preparatory or basal anesthetic.

The symptoms of acute poisoning with the drug, as set forth by Sollmann, are coma, marked fall in blood pressure, depression or even paralysis of respiration, fall in temperature, asphyxial convulsions and failure of response to the stimulants indicated. Apparently the same symptoms occur from a smaller dose of the drug in the patient who has an idiosyncrasy to it.

For their effectiveness in labor the barbiturates depend on the capability to produce forgetfulness (amnesia) and very little on analgesic effect. Their

3. Sollmann, Torald: Barbituric Acid Derivatives, in *A Manual of Pharmacology*, Philadelphia, W. B. Saunders Company, 1932, pp. 767-780.
4. Willcox, William: The Uses and Dangers of Hypnotic Drugs Other than Alkaloids, *Brit. M. J.* 1: 415-418 (March 10) 1934.

2. Gellhorn, George: The Advantages of Local Anesthesia in Gynecology and Obstetrics, *J. Missouri M. A.* 32: 143-145 (April) 1935.

action in the former direction is greatly enhanced by the addition of scopolamine. The patient may scream as if in great agony during the course of her labor pains but wake the morning after with no clear recollection of what has taken place. In his analysis of obstetric analgesias, Irving states that he considers no method successful which gives less than 100 per cent amnesia. The factor of relief from pain he considers a minor consideration.

The drugs apparently do not inhibit uterine contractions. Labor continues after the administration of the capsules and seems undelayed. In some instances the pains appear to become more tumultuous and delivery is hastened. While some cases of postpartum hemorrhage have been reported, their occurrence may be coincidental.

The advocates of the method assert that their drug supplants morphine, having none of its disadvantages and many advantages. They state that it does not delay labor, does not narcotize the baby and makes the patient forget the unpleasant experience of childbearing. Several maintain that morphine has no further place in obstetric practice because of its ill effect on fetal respiration.

A great disadvantage of the barbiturates is the restlessness that they produce. Patients under their influence may prove difficult to control. In such a confused and semistuporous state of mind, pain arising from the uterine contractions is misinterpreted and the parturient becomes confused. As the time for actual delivery approaches, the patient may become uncontrollable. Careful surgical preparation and spontaneous delivery under such circumstances is impossible. Usually the patient must be anesthetized with gas or ether and delivery consummated by low or mid forceps. The labor over and the pains dispatched, the patient falls into a deep slumber and remains almost comatose for a number of hours.

The most enthusiastic users of the pentobarbital sodium-scopolamine technic acknowledge that the rate of operative intervention is thereby multiplied many times, that forceps delivery becomes essential in from 40 to 60 per cent of cases. They also emphasize that patients under the influence of pentobarbital sodium must be watched with the closest attention, their care individualized and precautions taken that no injuries occur during the most restless periods. For this reason the method is available for use only in the hospital and can only be a source of grief if undertaken in the home.

Considering these facts, one questions whether pentobarbital sodium-scopolamine amnesia fulfils the requirement of safety. If the patient is in constant danger of injuring or contaminating herself, if her cooperation in the course of labor is utterly lost, if the incidence of operative intervention is multiplied tenfold, if the supervision of the case is transformed from an intelligent conduct of labor into the treatment of drug confusion, one doubts that the effect is worth the reaction that it produces.

Furthermore, a grave danger is added to the situation if labor must be terminated by difficult abdominal or vaginal delivery. The margin of safety in deep barbituric sedation is small, and it may be entirely consumed by further inhalation anesthesia, by obstetric shock or by even a limited amount of postpartum hemorrhage.

It is doubtful whether the barbiturate derivatives will replace morphine, for there is no drug that is more quieting, more restful and more efficacious than the

latter in long labor. This fact is recognized in a recent paper^{1a} in which the author advises the administration of morphine as an antidote to the restlessness induced by the barbiturates.

COMMENT

In reviewing the intrapartum deaths from which these statistics were drawn, one is impressed with the fact that the accoucheur seemed often so bent on getting his patient asleep or her baby delivered that he gave little thought to the outcome of his hasty procedures. When the birth of the child was accomplished he was abruptly confronted with the results. The lacerations gaped, the uterus relaxed, the patient's blood began to flow. The analgesic agent that gave such profound rest narcotized the baby; the material that was to bring the mother forgetfulness of her experience combined with third stage bleeding to produce obstetric shock; the anesthetic that made operative delivery convenient relaxed the uterus and caused postpartum hemorrhage. The situation called for real generalship and, unless it was forthcoming, fatality followed.

Thus does the seamy side of obstetric analgesia present itself. He who employs such methods of deep amnesia and deep analgesia will have it to face and must be prepared to cope with the emergencies it produces. The advocates of certain drugs will complain that the description is overdrawn, yet it is the precise story that appears again and again in the case histories.

What answer then shall be given to the new patient who wants first to know whether the pangs of labor will be eliminated?

First, that one fully sympathizes with her desire for relief and is familiar with, and uses in every labor various methods of attaining that end.

Second, that with due regard for her safety and the success of analgesia one prefers to select at the time of labor the drugs which seem best adapted to the condition present and the type of pain; that what is best for Mrs. Smith is not always best for Mrs. Jones.

Third, that one considers her safety and the safety of her child as paramount issues and that with these thoughts uppermost she will be attended closely during the critical period of labor.

With these assurances in mind and with confidence in her physician, the normal patient will approach her time of delivery with equanimity, accept a moderate and safe degree of analgesia, be comforted by the watchful attendance of her physician, and pass through her delivery in better condition than the mother who is drugged to an unconscious state and whose labor becomes a blank chapter in her life.

SUMMARY

1. Analysis of maternal deaths in Philadelphia for a five year period reveals an improvement in all forms of obstetric practice except that which has to do with the intrapartum period.

2. The physician's share in responsibility for sudden fatality in and after labor has increased a hundred per cent.

3. Methods of obstetric amnesia, analgesia and anesthesia have been considered as possible factors in this unfortunate increase.

4. On the basis of records of death, spinal anesthesia has been condemned as a method of practice, and the barbituric acid derivatives have been found not as free of danger as many reports would indicate.

1930 Chestnut Street.

PIRQUET CUBICLES FOR INFANTS

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In planning new children's hospitals we have all tried to replace the old large general ward by small rooms accommodating not more than from one to three children. Glass partitions are generally used between cubicles, so that the children may be easily watched by the centrally located nurse.

In 1928 Pirquet¹ described a new kind of isolation bed for new-born babies and young infants. At first Pirquet constructed a single bed separated from the ward by high glass walls instead of the usual railing. This glass wall could be lifted on one side like a window. Such a single isolated bed functioned very satisfactorily, but it was too expensive. Pirquet later modified his idea and built a combined unit of six small beds separated from one another by high glass walls.



Fig. 1.—Pirquet cubicles.

Each of these bed cubicles could be opened by lifting the "window" (one of the walls) along its frame. This cubicle unit has been in use in the Children's Clinic of Vienna for the past eight years, and the results have been satisfactory.

In the Children's Pavilion at Mount Sinai Hospital we were confronted with the problem of having inadequate isolation for about half of the beds in the ward for infants and children under 3 years of age. After the isolated beds were occupied, infants brought in for admission had to be turned away because of inadequate isolation facilities, even though there may have been empty beds at the time. The expense of building large cubicles was temporarily prohibitive. We therefore wanted to install cubicle units such as described by Pirquet, thus hoping to increase our capacity for young infants and give greater protection to these infants than had hitherto been done against cross infections.²

We decided to have two units of five beds each, which could be attached end to end to form a single

unit of ten beds. Both units were mounted on wheels with a diameter of 15 cm. so that they might easily be moved about. This is particularly desirable because the unit can be rolled to the outdoor porches. The total height of the unit is 180 cm. (fig. 1). Each bed measures 100 by 50 cm. The height of the window is 80 cm. These dimensions were selected in order to facilitate the management of the child by nurse or physician, whether standing or sitting. Each little cubicle has a wire spring on which rests a small mattress covered with a sheet. The mattress is set in at a distance of 75 cm. from the ground. There is a little pillow and, if necessary, a bed cover.

For bottle feeding the window is raised just a little, allowing the nurse, who may sit on a comfortable chair, to put her arm through the opening and hold the nursing bottle. With her other hand she can then lift the pillow and support the child's head and upper part of the body. In this way the nurse's face remains outside the cubicle, separated from the child by the glass window. This makes the wearing of masks unnecessary (fig. 2).

The cubicles are roomy enough to permit the changing of diapers and other clothing. It is for bathing only that each child has to be removed from the cubicle. During its absence the cubicle may be thoroughly cleaned, the bed made and the linen changed. The children seem to be very comfortable in their cubicles. They can look at one another and see much that is going on in the ward. They show all signs of contentment.

The cubicles permit the application of intravenous therapy. The child can be easily bandaged for fixation of the needle in the vein. The support for the container for the fluid or blood to be given is outside the cubicle, suspended on a stand. The rubber tube passes through the slightly raised window. When the child requires oxygen it can be given very easily with the oxygen tank standing outside and the funnel being connected with a rubber tube. If a larger tent is necessary it cannot be installed within the unit. A cubicle could, however, be converted into an oxygen chamber simply by having the cubicle made air tight.³ All other manipulations necessary for therapy, such as injections and infusions, are easily performed within the tent.

The child can easily be observed by anybody without direct contact. The danger of infection from without is reduced because external contact is reduced to the short time necessary for examining and handling the child. Any person who has an infection of the upper respiratory tract is not permitted to handle the child. In case of doubt, a mask is worn or the person is prohibited from contact with the infant. The danger of healthy "carriers" still exists, but even this danger is less since contact with the infant is reduced to a minimum. Before handling the individual child, the nurse or physician must wash her (his) hands.⁴

The questions which we wished answered and which are raised by every one who sees these cubicles for the first time are whether the ventilation in the cubicles is adequate and whether the cubicles are large enough to prevent a child's cough carrying infection from one cubicle to another.

From the Department of Pediatrics, Mount Sinai Hospital.
The photographs of the cubicles were taken by Lusha Nelson and Samuel H. Gottscho.

1. Pirquet, Clemens: *Ztschr. f. d. ges. Krankenhausw.* 24: 741 (Dec. 17) 1928.

2. Mr. and Mrs. A. S. Askin were interested in our need and furnished the necessary funds for these cubicles. We are indebted to them for their interest and generosity.

3. We have just converted one of the cubicles into an oxygen chamber. If necessary, several or all of the cubicles could be converted to oxygen chambers by simple additions.

4. The present status of visiting hours in our wards is very rigid. We believe that with the introduction of these cubicles it will be safe to increase the number of visiting hours, since actual contact of the parent and the patient will not take place and therefore the possibility of introduction of infection should be minimal.

Studies were made to ascertain the condition of temperature and humidity inside and outside the cubicles and to determine whether these cubicles were adequately large to avoid the spread of infection from one to the other (table 1).

These readings were made with a wet and dry bulb thermometer and the humidity was calculated from the temperature readings.

TABLE 1.—Comparison of the Temperature and the Humidity Inside and Outside the Cubicles

Date	Time (Hourly)	Temperature Range, F.		Humidity Range	
		Inside	Outside	Inside	Outside
8/20/35	10 a. m.-6 p. m.	76-84	80-82	80-82	78-84
8/23/35	4 p. m.-12 p. m.	72-77	70-74	58-74	58-72
8/24/35	7 a. m.-6 p. m.	62-74	62-72	57-69	55-69
8/25/35	7 a. m.-10 p. m.	66-74	62-72	58-62	58-62
9/7/35	10 a. m.-11 p. m.	68-70	57-72	68-76	62-71
9/8/35	10 a. m.-3 p. m.	70-74	71-73	72-78	71-78
9/19/35	7 a. m.-6 p. m.	72-77	70-75	66-71	62-77
9/20/35	7 a. m.-6 p. m.	69-74	66-74	69-77	66-75
9/28/35	11 a. m.-4 p. m.	72-74	72-73	70-88	69-96

TABLE 2.—Conditions Represented Among the Children Admitted to the Cubicles

Alimentary intoxication.....	13	Malnutrition.....	8
Anemia in new-born.....	1	Peritonitis (streptococci).....	2
Asthma.....	1	Pneumonia.....	20
Bronchitis.....	6	Purpura.....	1
Convulsions.....	2	Pyelitis.....	3
Cerebral hemorrhage.....	1	Pyloric stenosis.....	3
Congenital intestinal anomaly.....	1	Otitis media.....	4
Congenital heart.....	2	Sepsis.....	3
Congenital syphilis.....	1	Sepsis with streptococci meningitis.....	1
Diarrhea.....	2	Tay-Sachs disease.....	1
Eczema.....	4	Tetany.....	1
Empyema.....	1	Thrush.....	1
Fever.....	1	Tuberculosis.....	1
Gastro-enteritis.....	7	Upper respiratory infection.....	7
Hepatomegaly.....	1	Vomiting.....	4
Hydrocephalus.....	4		

There were 17 deaths:

Alimentary intoxication.....	3	Hydrocephalus.....	2
Birth injury.....	1	Meningitis.....	1
Congenital anomaly of the intestine.....	1	Peritonitis.....	1
Congenital heart and bronchitis.....	1	Pneumonia.....	4
		Sepsis of the new-born.....	2
		Ulcerative colitis.....	1

The difference in temperature inside and outside the cubicle never was greater than 6 degrees F. and usually was from 2 to 3 degrees, the higher temperature being inside the cubicle no more often than outside.

The relative humidity usually varied from 2 to 6 per cent but reached from 10 to 12 per cent in some instances. The changes seemed to take place more slowly within the cubicles.

The differences in temperature and humidity were only slightly affected by the presence of infants in the cubicles.

EXPERIMENTS TO DETERMINE THE POSSIBILITY OF SPREADING OF INFECTION FROM ONE CUBICLE TO THE ADJACENT CUBICLES

1. The patient had bronchitis and his cough, after feeding, resulted in a spray of milk hitting the opposite wall of his cubicle as high as 4 inches from the top. A large plate placed in the adjacent cubicle failed to show any spraying after four days.

2. Culture plates were stuck 3, 8 and 12 inches from the top of the window opposite the face of a baby who was ill with nasopharyngitis and otitis media. This child was sneezing but was not coughing much. After three days none of the three culture plates showed any growth.

3. *Bacillus prodigiosus* cultures were spread about one cubicle, Oct. 29, 1935, and culture plates were placed in the other four and some just outside the cubicles. After from twenty-four to forty-eight hours all plates were contaminated with fungoid and bacterial growth but in none except the original plates of *B. prodigiosus* was this organism recovered.

4. On one occasion, Nov. 12, 1935, when three children in cubicles vomited and had fever, the same was true of several children in the ward. One nurse who was taking care of these infants had a cold. Cultures taken from the infants' throats and from this nurse revealed a very similar flora:

Nurse: *Streptococcus haemolyticus* beta, *streptococcus viridans*.

Baby A.: *Streptococcus haemolyticus* beta, *streptococcus viridans*, *Staphylococcus aureus* and *albus* and *Pneumococcus* III.

Baby B.: *Streptococcus haemolyticus* beta, *streptococcus viridans*, *Staphylococcus aureus*.

The observations made by Pirquet and those recorded in our study indicate that the temperature inside and outside the cubicle is practically the same. Apparently the chimney effect produced by the space left between the mattress and the wall of the cubicle permits sufficient exchange of air. The measurement of humidity showed equally satisfactory agreements.

The studies to determine the possibility of spread of infection seemed to point to spread by contact of the personnel with the infants rather than from one infant to another. Our statistics, we believe, bear out this impression.



Fig. 2.—Position of nurse's face outside the window while changing the child's diaper.

Another possible question often raised is that of exposure of the infants in these cubicles to direct sunlight. The ultraviolet rays are certainly excluded by the glass partitions, although the lack of vitamin D can be and is counteracted by administration of a substitute, such as cod liver oil or viosterol. Lack of sunlight is a justifiable objection, but this is not more true of infants in these cubicles than of those in other hos-

pital rooms. We take the children out for mercury vapor lamp treatment. We expect to install an ultra-violet ray lamp which will hang from the ceiling and which can be moved to shine over any infant within these cubicles.

SURVEY OF ADMISSIONS TO CUBICLES

The total admission to cubicles has been eighty-nine cases. The average stay has been twenty days.

In twelve children fourteen attacks of acute infection of the upper respiratory tract developed during their stay in the cubicles. Two of these had two attacks, one with otitis media. Three of these occurred on the same day on which their nurse came down with a cold. In one child thrush developed ten days after admission for pneumonia. One child, admitted with pyloric stenosis, died four days later of what appeared to be aspiration pneumonia. On each of two occasions three children developed diarrhea with fever. The attempt to trace the cause was unsuccessful.

The child who was infected with thrush was in the cubicle adjacent to a baby who had been admitted four days before with pneumonia and thrush.

The proof of the efficiency lies in the practical use of the units. It has already been proved by the results of the cubicles in the Children's Clinic in Vienna, which cover a period of eight years. Our experience is of one year's duration, during which time we admitted eighty-nine children into the cubicles with an average stay of about twenty days. In twelve children fourteen attacks of infection of the upper respiratory tract developed (two had two attacks). In three instances the attacks were traced to a nurse who came down with a cold at the same time. It is of special interest that otitis media developed in only three children in spite of the fact that thirty-five children had been admitted with respiratory infections, including four cases of otitis media.

The installation of the unit permitted us to increase the bed capacity from twenty-six to thirty-two. We substituted ten cubicles for four regular size infants' beds and thus gained room for six additional infants. We intend to remove the three beds still remaining in the open ward and replace them by a new unit of six beds, again increasing our bed capacity. The new unit is therefore a decided space-saving device. The cost of manufacturing both cubicle units (ten beds) was \$850. The manufacturers state that they made no profit on this transaction; cubicles of this size will therefore sell for about \$1,000.⁵

We are convinced that this new cubicle system is not only suitable for general use in infants' wards but is especially fitted for the new-born wards of maternity clinics.

We have long been cognizant of the fact that the open nurseries of our most modern maternity clinics are frequently overcrowded and have little or no means of separating the children from one another. We all have frequently been disturbed by the transmission of different infectious diseases (cutaneous, respiratory and alimentary diseases) when the children were not isolated. Essentially there has been little change in the construction of nurseries. We feel strongly that this condition should and must be remedied, and we feel reasonably certain that the demonstrated isolation unit of Pirquet is a satisfactory and economical step forward in the solution of this problem.

5. Dr. Joseph Turner, director of our hospital, has diminished the size of the structure by removing much of the upper framework.

We believe that an admission or reception ward would be decidedly improved by the addition of such a unit of from three to ten cubicles, according to the requirements of the particular hospital. By the sense of privacy that it imparts, it would diminish the number of examinations by curious individuals and also avoid the unnecessary attention paid to a "cute" baby by individuals not interested in the child for any medical reason.

It is our conviction that these isolation beds are satisfactory for the purpose for which they were intended. The nurses and physicians are very much pleased with the practical handling of the units and the children. It is furthermore our recommendation that these cubicle units be tried in nurseries and reception wards.

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BLOOD STUDIES

A REPORT OF 2,728 CASES

E. W. PERNOKIS, M.D.

CHICAGO

My purpose in this paper is to summarize the results obtained from examination of the blood of 2,728 consecutive patients reporting to the blood clinic of the Central Free Dispensary, Rush Medical College, Chicago, from April 1, 1933, to Aug. 1, 1936. During this time 93,148 new patients were admitted to all the various departments of the dispensary, and a total of 704,175 visits were made; 2,728 patients from this total number reported to the blood clinic for examination. Half of the number came because of suspected blood disorder by the attending physician, and the remainder because additional aid was desired for the diagnosis. Special mention is made of the incidence and significance of the blood examinations in the blood dyscrasias and the other disorders encountered. An effort is made to show by illustration that the average of a series of blood count values in any of the groups encountered, excepting polycythemia and leukemia, fails to accentuate and tends to minimize any blood abnormality that may exist. All the cases reporting to the clinic may be grouped for convenience into the following six large classifications:

1. Blood dyscrasias.
2. Anemia from hemorrhage not associated with blood dyscrasia.
3. Infections.
4. Miscellaneous group.
5. Abnormal blood changes without definite clinical diagnosis.
6. Normal blood values without any positive clinical diagnosis.

METHOD

A complete blood count was done on every patient reporting to the clinic. The Dare apparatus was used for routine hemoglobin determinations and the Sahli for checking abnormally low hemoglobin values. Red blood counts were done with Hayem's solution as the diluting fluid and with pipets and chamber which bore the U. S. Bureau of Standards qualifications. A hemoglobin value of 70 per cent or lower and a red cell count below 4,000,000 were considered to represent an anemia.

For white blood count determinations 4 per cent acetic acid colored with methylene blue was used as the diluting fluid, and the pipets and chamber likewise bore

the Bureau of Standards qualifications. White counts above 10,000 were termed leukocytoses while values below 4,000 were termed leukopenias. Blood films for differential counts were made both on glass slides and on cover slips which had been thoroughly cleaned with soap and water and alcohol and passed through the flame. The glass slide method was the more practical for clinic use, though cover slip preparations were made in all the more important cases. Wright's stain was used for routine staining and checks were made with Giemsa and May-Grünwald stains when abnormal blood cells were noted. Two hundred cells were counted on the first differential of all cases and on the subsequent counts of all the pathologic cases, and only 100 cells on the patients on whom no abnormality was noted on the first differential. The Goodpasture stain was used for differentiating the acute myelogenous from the acute lymphatic leukemias. The platelets were counted both by the 4 per cent citrate dilution method and the Fonio magnesium sulfate slide method. Values between 250,000 and 350,000 were considered normal.

were met in states of remission and the low ones in states of relapse. All the patients in this group had an achylia gastrica. The leukopenia during the state of relapse was definite though not marked. Lymphocytosis was not constantly found even in the state of relapse. One patient showed a marked eosinophilia of 64 per cent. The only possible cause for the eosinophilia which could be demonstrated clinically was a mild bronchitis. Search was made for animal parasites but none were found. The one characteristic in all the blood films of the pernicious anemia patients in a state of relapse was macrocytosis. Anisocytosis and poikilocytosis varied greatly. All the patients responded to liver therapy.

Purpura.—Symptomatic purpuric manifestations following acute infections, drug administration, metabolic disbalance and cardiac decompensation were the most common. There were five cases of idiopathic purpura haemorrhagica; two were in children 5 and 8 years of age. Neither of these patients had a palpable spleen but both had typical blood values. One child, in addi-

TABLE 1.—Blood Dyscrasias

Condition	Number		Hemo- globin	Erythro- cytes	Leuko- cytes	Poly- morpho- nuclears	Lympho- cytes	Mono- cytes	Eosino- phils
Pernicious anemia.....	80	High	120	6,060,000	18,000	85	68	12	64
		Average	73	3,872,000	6,800	59	33	5	5
		Low	12	1,050,000	2,000	18	10	1	1
Purpura.....	23	High	115	5,600,000	10,400	78	44	10	8
		Average	84	4,450,000	7,400	63	29	4	2.5
		Low	30	2,500,000	5,050	32	17	1	0
Hodgkin's disease.....	22	High	100	5,000,000	28,000	79	49	10	7
		Average	80	4,080,000	7,700	69	36	5	2.5
		Low	50	2,400,000	3,300	17	16	1	0
Polycythemia.....	17	High	120	8,000,000	32,000	90	44	8	7
		Average	89	7,000,000	16,000	72	20	3	2
		Low	75	5,500,000	5,100	44	10	1	0
Leukemia.....	16	High	98	5,800,000	700,000	86	94	23	9
		Average	65	3,820,000	121,000	40	13	4	2
		Low	24	1,350,000	6,900	5	1	0	0
Suspect pernicious anemia.....	15	High	92	4,870,000	13,400	72	53	5	6
		Average	69	3,970,000	7,420	67	35	2.5	1
		Low	40	3,230,000	3,250	45	18	0	0
Aplastic anemia.....	8	High	95	5,100,000	16,000	92	82	14	8
		Average	53	3,410,000	7,000	60	37	4	1.5
		Low	9	960,000	1,850	16	12	1	0
Chlorosis.....	4	High	95	5,320,000	17,000	71	65	8	6
		Average	57	4,200,000	10,000	60	32	5	2.5
		Low	40	3,490,000	6,600	31	21	3	0

The reticulocytes were counted with 1 per cent brilliant cresyl blue in absolute alcohol. The coagulation time was done with the capillary pipet and the bleeding time with the filter paper method. The color index was determined from the red count and hemoglobin values. No volume index determinations were made. The degree of anisocytosis, poikilocytosis, macrocytosis, achromia and polychromatophilia were carefully searched for on each smear and recorded in terms of pluses. The terms "lymphocytosis," "monocytosis" and "eosinophilia" were used when found above 35 per cent, 8 per cent and 5 per cent, respectively. Values for normal are those accepted by Naegele. Blood counts were done by two technicians under immediate supervision. Blood counts done by students and others are not included.

BLOOD DYSCRASIAS

There were 185 cases of blood dyscrasias, or 6.5 per cent of the total, divided as in table 1.

Pernicious Anemia.—This was the most common blood dyscrasia encountered. Average values for red cells, white cells and hemoglobin determinations fail to reveal as indicated in table 1 the individual characteristics shown on separate counts. The high values

tion to the purpura, also had epilepsy. The third patient was a girl aged 16 years with acute purpura in whom repeated blood transfusions failed to shorten the bleeding time and who died a few hours following an emergency splenectomy. The fourth patient was 19 years of age with typical blood values and symptoms that are controlled by blood transfusion and intra-muscular liver extract injections. The fifth patient was 50 years of age and had had purpura for twenty years.

Hodgkin's Disease.—One third of the cases presented anemia as a late manifestation. Itching was present in one half of the cases. The only constant blood manifestation was either an absolute or a relative leukocytosis. There was no definite disproportion of the eosinophils or monocytes.

Polycythemia.—All the patients were males. The spleen was palpable in only three; 75 per cent of the patients showed peripheral vascular disease. The white blood counts were increased in fifteen of the seventeen cases. The differential count showed an increase in the polymorphonuclear neutrophil cells.

Leukemias.—Two of the sixteen cases were of the monocytic type with the diagnosis confirmed at autopsy. One patient reported to the clinic because of severe

anemia, in the aleukemic phase, and died in the hospital three weeks later with acute myelogenous leukemia. One patient with myelogenous leukemia in the aleukemic phase had cutaneous manifestations and was referred to the clinic from the skin department. One of the myelogenous leukemia patients had had a splenectomy and complained of more pain over the long bones than did the other patients. There were nine

TABLE 2.—Blood Counts in 120 Cases of Menorrhagia

	Hemo- globin	Erythro- cytes	Leuko- cytes	Poly- morpho- nuclears	Lym- pho- cytes	Mono- cytes	Eosino- phils
High	95	5,900,000	15,000	80	48	10	7
Average	63	3,900,000	7,100	60	32	4.5	3
Low	20	2,700,000	2,700	50	19	3	1

TABLE 3.—Varieties and Frequency of Infections

Condition	Number
Syphilis.....	69
Endocervicitis.....	61
Bronchitis.....	45
Tuberculosis.....	40
Tonsillitis.....	32
.....	28
.....	24
.....	22
Nasopharyngitis.....	20
Dental caries.....	20
Malaria.....	8
Parasites.....	7
Prostatitis.....	5
Echinococcus cyst.....	2
Tularemia.....	2
Sprue.....	1
	350

cases of chronic myelogenous leukemia and three of chronic lymphatic type. With the exception of the cases in the aleukemic phase of the disease, the white blood counts were well above the normal values for leukocytosis. The peroxidase stain, when used, gave less help in the differential diagnosis than we had been led to hope for. Vital staining with the neutral red and janus green failed to aid in the diagnosis of the acute monocytic leukemias, which prior to autopsy were considered from the clinical picture and the morphology of the cells as acute myelogenous leukemias. Anemia was present in some stage of the disease and improved with remissions and increased with relapses.

Suspected Pernicious Anemia.—This group was made up of fifteen patients in whom the blood examinations resembled those of pernicious anemia but the laboratory data were not completed and the diagnosis was therefore uncertain.

Aplastic Anemia.—Four of the eight cases placed in this group showed an aplasia of the bone marrow following severe persistent blood loss. All four responded to treatment. Two of the patients with aplasia of the bone marrow were old and had marked arteriosclerosis and no other demonstrable cause for the aplasia. Two patients with marked hypofunction of the bone marrow had manifestations of pituitary and thyroid dysfunction. There were not in the group any cases that could be termed essential aplastic anemia with a rapid downward course. Though there was bleeding from the gums and nose, none of the patients showed any ulcerations on the gums, palate, tongue or tonsils.

Chlorosis.—In this group there are four patients, all young, adolescent girls with very low hemoglobins, high red blood cell counts and marked achromia of the red cells. All four responded well to iron therapy. This group is of interest in view of the supposed rarity of the disease today.

ANEMIA FROM HEMORRHAGE NOT ASSOCIATED WITH BLOOD DYSCRASIAS

In the group of anemia from hemorrhage not associated with blood dyscrasia there are 208 cases, or 7.5 per cent, of the total, with the following causes and frequency: menorrhagia 120, peptic ulcer 55, bleeding hemorrhoids 24, epistaxis 8. One hundred and eighty of the 208, or 86.5 per cent, showed an anemia; the remainder appeared for examination after they had sufficiently recovered so that anemia was not demonstrable. Twenty-one cases, or 10 per cent, showed a leukocytosis, while forty-six cases, or 22 per cent, showed a lymphocytosis. Monocytosis was encountered in thirteen cases, or 6.2 per cent, and eosinophilia in seven cases, or 3.3 per cent. The failure of average counts to give a satisfactory representation of the variations shown by individuals is manifest in table 2, menorrhagia being used as an example. Since exactly similar observations were obtained with the other diseases in this group, they are not reproduced here.

This group was particularly interesting because of the close similarity between many of these patients and pernicious anemia clinically. One patient with repeated blood loss from bleeding hemorrhoids, to which he had attributed little significance, had been diagnosed as having pernicious anemia and treated accordingly for several months before he entered the clinic. Removal of the hemorrhoids and the administration of iron enabled the patient to return to his work within a month. A woman patient with marked uterine blood loss who had been eating many carrots reported to the clinic as having pernicious anemia. She had the lemon yellow color of the skin and an achylia gastrica but a typical

TABLE 4.—Blood Counts in Sixty-Nine Cases of Syphilis

	Hemo- globin	Erythro- cytes	Leuko- cytes	Poly- morpho- nuclears	Lym- pho- cytes	Mono- cytes	Eosino- phils
High	100	4,900,000	16,000	92	62	17	13
Average	63	3,816,000	7,260	59	33	5	2.5
Low	11	1,700,000	4,000	28	12	1	1

TABLE 5.—Frequency of Disease in Miscellaneous Group

Condition	Number
Arthritis of the various varieties.....	410
Cardiovascular-renal disease.....	191
Colitis.....	87
Carcinoma.....	71
Thyroid disease.....	62
Malnutrition.....	54
Nervous disorders.....	52
Pregnancy.....	37
Cirrhosis.....	20
Menopause.....	14
Diabetes.....	13
Lead poisoning.....	13
Dermatitis.....	9
Achylia gastrica.....	7
Senility.....	6
Alcoholism.....	2
Scleroderma.....	1

secondary anemia blood picture. Removal of a large bleeding fibroid and elimination of the carrots from the diet caused complete recovery. In none of these cases was there any macrocytosis present on the stained smear, and the color index was below 1.

INFECTIONS

In the group of infections there were 350 cases, or 12.5 per cent of the total, with the varieties and frequency given in table 3. There are here included conditions which of themselves might not be classified as infections but in cases here tabulated other condi-

tions, such as fever, purulent discharge, local evidence of inflammation, supported their inclusion in this group.

When grouped according to the blood picture but without reference to the specific infection, it was found that anemia was present in 173 cases, or 50 per cent of the total, leukocytosis in ninety-two cases, or 26.3 per cent, lymphocytosis in seventy-six cases, or 21.7 per cent, monocytosis in forty-three cases, or 12.29 per cent, and eosinophilia in twelve cases, or 3.4 per cent of the total. Syphilis is taken as an example for this group for the illustration of high, average and low counts; the other diseases showing similar observations are not recorded in table 4.

From the list of diseases it is evident that the more chronic infections are more frequently seen in the clinic. About 25 per cent of the syphilitic patients were referred to the clinic because of jaundice following antisyphilitic therapy. They showed only a secondary anemia and no characteristic differential manifestations. The group of bronchitis patients did not have any noticeable eosinophilia. The tuberculous patients tended to have a leukocytosis as the outstanding blood manifestation. The intestinal parasites did not have an eosinophilia nor did the two cases of echinococcus cyst that were confirmed by operation. The two cases of tularemia showed no characteristic blood manifestations except the positive complement fixation test.

MISCELLANEOUS

The miscellaneous group constitutes the largest group and is termed miscellaneous for lack of a better term to cover the great variety of diseases that it includes. The diseases of which it consists are given in table 5 in the order of frequency.

When grouped according to the results of blood examination without reference to the specific disease, table 6 illustrates the results.

Arthritis is taken as an example for high, average and low counts from this group (table 7). Averages of all the counts in each of the other disease processes included in this classification fails, as it does in the arthritis group, to illustrate any characteristic change.

The arthritis group, which includes all the varieties, varied much in the blood counts. Many were normal, others showed a severe anemia. One point of interest is shown by the patients with hypertrophic arthritis, who had a tendency to show in the differential an increase in the lymphocytes. The patients with anemia, when treated, showed an improvement in the arthritic symptoms.

In the carcinoma group the patients with carcinoma of the stomach showed the greatest anemia and a leukocytosis. The patients with carcinoma of the esophagus and intestinal tract showed milder anemias and less leukocytosis.

Thyroid disease showed in addition to the anemia a lymphocytosis.

The anemias referred from the obstetric department were the most severe. Thirty of the thirty-seven patients had an achylia and a macrocytic type of anemia and responded to liver therapy, and seven patients had a hypochromic type of anemia which responded to iron therapy.

It is interesting to note that all the thirteen patients with lead poisoning showed increased quantities of lead in the urine, but in none of the thirteen was it possible to obtain an increased number of stippled red cells as would be expected.

ABNORMAL BLOOD CHANGES WITHOUT DEFINITE CLINICAL DIAGNOSIS

There are 152 cases, or 5.5 per cent of the total, which showed definitely abnormal blood changes but in which no definite clinical diagnosis was made. Many of these patients failed to cooperate and did not return to the clinic. The following observations were demonstrated:

Anemia found in eighty-four cases, or 55.2 per cent
Leukocytosis in thirteen cases, or 8.5 per cent
Lymphocytosis in fifty-four cases, or 35.5 per cent
Monocytosis in ten cases, or 6.5 per cent
Eosinophilia in eight cases, or 5.2 per cent

NORMAL BLOOD VALUES WITHOUT ANY POSITIVE CLINICAL DIAGNOSIS

There are in the sixth group 786 cases, or 28.5 per cent, in which no definite blood changes were demonstrated and no clinical disease found. Many of these patients came during the height of the depression with many nervous complaints. They were making an effort to acquire more food and coal and expected the doctor

TABLE 6.—Results of Blood Examination in the Miscellaneous Group

	Cases	Per Cent
Anemia.....	531	50.71
Leukocytosis.....	237	21.7
Lymphocytosis.....	236	22.5
Monocytosis.....	57	5.4
Eosinophilia.....	14	1.3

TABLE 7.—Blood Counts in Arthritis

	Hemo- globin	Erythro- cytes	Leuko- cytes	Poly- morpho- nuclears	Lym- pho- cytes	Mono- cytes	Eosino- phils
High	100	5,000,000	12,500	87	58	16	14
Average	72	4,200,000	7,800	57	36	3.7	3
Low	24	2,650,000	3,500	26	12	1	1

to aid them. Many of the blood counts on these patients were done as a routine to eliminate any underlying pathologic condition before the patient was dismissed from the clinic.

SUMMARY

1. Two thousand seven hundred and twenty-eight cases reported to the blood clinic of the Central Free Dispensary of Rush Medical College, Chicago, during an interval of forty months from April 1, 1933, to Aug. 1, 1936. During this interval 704,175 visits were made to all the various departments of the dispensary.

2. The cases are divided into the following groups:

Blood dyscrasias 185, or 6.5 per cent.

Anemias from hemorrhage 208, or 7.5 per cent.

Infections 350, or 12.5 per cent.

Systemic diseases 1,047, or 38.5 per cent.

Blood changes with undetermined clinical diagnoses 152, or 5.5 per cent.

Normal blood without definite clinical diagnosis 786, or 28.5 per cent.

3. Six and five-tenths per cent of the total number of patients who reported to the clinic showed blood dyscrasias, while the others were sent there by the physician in charge to get aid in making the diagnosis in question.

4. Fifty per cent of the cases with infections and general systemic diseases showed an anemia, while 25 per cent of each group showed a leukocytosis. Lym-

phocytosis was present in 20 per cent of the infections and 25 per cent of the systemic diseases. The monocytes were increased in 12 per cent of the infections and 5 per cent of the systemic diseases, while the eosinophils were increased in 3.4 per cent of the infections and 1.3 per cent of the systemic diseases.

5. There were no cases of agranulocytic angina or acute infectious mononucleosis in the collection.

6. In none of the 100 cases of arthritis in which aminopyrine and phenobarbital had been administered was there a case of leukopenia noted.

7. Averages of the blood counts and differential values in the various groups fail to demonstrate the individual differences seen in separate counts.

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DISSECTING ANEURYSM OF THE AORTA

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It is a rather striking paradox that the most dramatic of all vascular accidents is seldom recognized antemortem. There have been almost 500 cases dealing with rupture of the aorta reported in the literature, and in only nine¹ instances has a correct antemortem diagnosis been made. Swaine,^{1a} Mager,² Davy and Gates,³ Hirschboeck and Boman,⁴ Moosberger,⁵ Vaughan,⁶ Kellogg and Heald,⁷ White,⁸ and Weiss⁹ are listed as having correctly diagnosed cases. Wyss¹⁰ is said to have diagnosed a case, but it seems from his statement that a saccular aneurysm was suspected rather than a dissecting aneurysm, as is also true in the cases of Osler¹¹ and Finny.¹²

We are reporting three cases in which a correct antemortem diagnosis was made, bringing the total number to twelve, which is far short of those in which a diagnosis could have been made during life. The records of three others are also given in which the diagnosis was not made, in one of which no history was obtainable. This presentation is made in an endeavor to

stimulate interest and thereby raise the number of correct diagnoses to a respectable percentage of the whole.

Dissecting aneurysm of the aorta is an incomplete rupture of the aortic wall wherein the escaping fluid separates the layers of the arterial wall to a variable extent. There is usually a terminal rupture at some distant point, either externally or into the original blood channel. Rarely, spontaneous fibrosis and healing occur without a second rupture.

HISTORY

Nicholls,¹³ as early as 1728 demonstrated the fact that rupture of the inner coat of the aorta could occur without rupture of the outer coat. In 1761 he described a dissecting aneurysm found at autopsy on George II, king of England. The patient died immediately after straining at stool and autopsy revealed a dissecting aneurysm which by pressure had almost occluded the pulmonary artery, causing so much back pressure that the right ventricle burst. Morgagni¹⁴ reported a case in 1769, and in 1798 Lynn¹⁵ published a striking account of a dissecting aneurysm occurring during labor. Laënnec¹⁶ in 1819 is usually given credit for the term "aneurysma dissecans." The first case reported in America was by Pennock¹⁷ in 1838. Swaine^{1a} published the first correct antemortem diagnosis in 1856, and in 1863 Peacock¹⁸ presented his classic review of eighty cases. Reports in the literature from this time forward are too numerous to mention.

INCIDENCE

In a review of the reported cases, dissecting aneurysm is most common between the ages of 40 and 70 years. Males are affected twice as frequently as females. Race does not seem to be an important feature, nor does altitude or climate. A study of autopsy statistics reveals that dissecting aneurysm is found approximately once in 500 autopsies.

CAUSATIVE FACTORS

There are two features necessarily present in almost every dissecting aneurysm. First there must be a defective aortic wall and, second, an abnormal hydrostatic pressure in the aorta. It has been demonstrated that the normal aortic wall will withstand a pressure above 1,000 mm. of mercury. Since this greatly exceeds the pressure reached even during severe hypertension, a pathologic aortic lining must be included as one of the factors. Considerable study has been carried out in this direction, and from the numerous observations that have been made it seems clear that the real causative factor lies in the media. Quite frequently intimal fissures and tears are found without any demonstrable dissections, which would tend to prove that unless the media is readily split there will be no dissecting aneurysm. The only fairly constant finding in the media has been a degenerative change, which results from sclerosis of the vasa vasorum. Whether this causes a loss in the connecting fibers between the laminae of the media has not been definitely settled.

From the Department of Medicine, Emory University School of Medicine.

1. Since the preparation of this article, two excellent reviews have appeared: Osgood, E. E.; Gourley, M. F., and Baker, R. L.: *Diagnosis of Dissecting Aneurysm of the Aorta*, Ann. Int. Med. 19: 1398-1411 (April) 1936. Perry, T. M.: *Dissecting Aneurysms of the Aorta*, Am. Heart J. 12: 650-665 (Dec.) 1936.

1a. Swaine: *Dissecting Aneurysm of the Aorta*, Tr. Path. Soc., London 7: 106-111, 1855-1856.

2. Mager, W.: *Ein Beitrag zur Lehre von den Erkrankungen der Aorta*, Ztschr. f. Heilk. 4: 323-333, 1903.

3. Davy, H., and Gates, M.: *A Case of Dissecting Aneurysm of the Aorta*, Brit. M. J. 1: 471-472 (March 25) 1922.

4. Hirschboeck, F. J., and Boman, P. G.: *A Case Report of Dissecting Aneurysm of the Aorta, with Distinctive X-Ray Findings*, Minnesota Med. 5: 724-726 (Dec.) 1922.

5. Moosberger, W.: *Zur Symptomatologie des Aneurysma Dissecans*, Schweiz. med. Wchnschr. 54: 323-330 (April 3) 1924.

6. Vaughan, R. T., cited by Samson, P. C.: *Dissecting Aneurysms of the Aorta, Including the Traumatic Type; Three Case Reports*, Ann. Int. Med. 5: 117-130 (Aug.) 1931.

7. Kellogg, Frederick, and Heald, A. H.: *Dissecting Aneurysm of the Aorta; Report of Case Diagnosed During Life*, J. A. M. A. 100: 1137-1160 (April 15) 1933.

8. White, P. D.; Badger, T. L., and Castleman, Benjamin: *Dissecting Aortic Aneurysm Wrongly Diagnosed Coronary Thrombosis*, J. A. M. A. 103: 1135-1139 (Oct. 13) 1934.

9. Weiss, Soma: *The Clinical Course of Spontaneous Dissecting Aneurysm of the Aorta*, M. Clin. North America 18: 1117-1141 (Jan.) 1935.

10. Wyss, O.: *Aneurysma Dissecans der Aorta Ascendens*, Arch. d. Heilk. 40: 490-502, 1869.

11. Osler, William: *Modern Medicine*, Philadelphia, Lea Brothers & Co. 4: 468, 1908.

12. Finny, M.: *Tr. Acad. M. Ireland, Dublin* 3: 68-69, 1835.

13. Nicholls: *Philosophical Transactions* 52: 265, 1761.

14. Morgagni, J. B.: *The Seats and Causes of Diseases Investigated by Anatomy*, in five books containing a great variety of dissections, with remarks, translated from the Latin by Benjamin Alexander, London.

A. Milla and T. Cadell 1: 802, 1769.

15. Lynn: *An Account of a Rupture of the Aorta Near the Heart*, Medical Record and Researches of a Private Medical Association 6: 71-82, 1798.

16. Laënnec, R. T. H.: *A Treatise on Mediate Auscultation*, 1846, p. 761.

17. Pennock, C. W.: *Case of Anomalous Aneurysm of the Aorta Resulting from Effusion of Blood Between the Laminae Composing the Middle Coat of That Vessel*, Am. J. M. Sc. 23: 2-19, 1838.

18. Peacock: *Report on Cases of Dissecting Aneurysm*, Tr. Path. Soc., London 14: 87-125, 1863.

There have been several cases reported in which there was dissection in the media without any intimal rupture being demonstrated. The fluid filling the cavity was blood from ruptured vasa vasorum, but in one case reported by Whitman and Stein¹⁹ it was "a clear lymphlike fluid." With this pathologic condition present in the media, a pressure within the aorta sufficient to break through the intima is all that is necessary to complete the process. In most cases this force is supplied by the already present hypertension supplemented by an additional rise in pressure due to exertion. This last feature is often "the straw that breaks the camel's back." Congenital hypoplastic aortas, coarctation of the aorta and syphilis are sometimes apparently causative factors, but these make up a small minority of freak cases.

CLINICAL MANIFESTATIONS

Prodromal Symptoms.—Since hypertension is so generally a factor in cases of dissecting aneurysm, it is usually possible to elicit from the patient a history of headache, vertigo, spots before the eyes, gastro-intestinal disturbances, shortness of breath and other manifestations of elevated arterial tension. The patient quite frequently has been told by a physician that he has high blood pressure. In only one case²⁰ have we found preexisting fear of imminent calamity.

Onset.—The onset as a rule is sudden and arresting. The patient, without warning and during exertion, suddenly experiences an agonizing, tearing pain, usually in the anterior portion of the chest, which is so severe that shock immediately follows. This pain, which feels as though something has been "torn loose inside," lasts a variable length of time, usually from ten minutes to two or three hours. It may remain localized in some part of the anterior chest wall, usually the precordium, but more often it radiates to the back in either the thoracic or the lumbar region or to the epigastrium. It is seldom referred to the arms and in those cases in which this radiation is present it is as a rule referred to the outer surface rather than to the inner. In a few cases there is no acute onset but more of a feeling of malaise, symptoms of cardiac insufficiency, occasional precordial or substernal distress; these, however, make up about 10 or 15 per cent of the total number of cases. Patients with the typical onset frequently lose consciousness for several minutes, although some remain perfectly clear mentally. Quite frequently there is a temporary loss of vision and a fear of impending death. Many become nauseated and vomit soon after the onset. Shock is usually present, with cold extremities, clammy perspiration and dyspnea, which usually lasts from twenty to thirty minutes. If the dissection by pressure blocks the subclavian or iliac arteries there is usually a feeling of numbness and weakness in the corresponding extremity with, at times, almost total temporary paralysis. If the carotid artery is involved there may be hemiplegia, convulsions and other symptoms resembling a cerebral hemorrhage.

PHYSICAL SIGNS

Examination of the patient at this time usually reveals the blood pressure above normal in spite of the other signs of shock. The heart is usually enlarged and a systolic murmur at the apex and over the aortic area is generally present. Quite frequently there is a to and

fro aortic murmur suggestive of aortic insufficiency, although the peripheral signs seldom bear this out. The aortic area of dullness is usually somewhat increased. At times, over the course of the aorta, rumbling, hissing or blowing murmurs may be heard, depending on partial occlusion of the aortic lumen from pressure of the dissecting aneurysm. The lungs are usually clear except for congestion at times in the bases and quite frequently a small amount of fluid, especially in the left pleural cavity. Coolness and absence of arterial pulsation in one or more extremities are frequently present and are the most outstanding diagnostic signs. If the occlusion is only partial, the blood pressure may be unequal in corresponding arteries and there may be a blowing systolic murmur at the point of partial block. Deep pressure over the abdominal aorta may at times be quite painful if dissection is present in this vessel. When the dissection involves vessels supplying various segments of the spinal cord, there may be bizarre neurologic manifestations such as loss of reflexes, paresthesias and motor paralysis. Blockage of a carotid artery gives the neurologic picture of a widespread cerebral hemorrhage or embolism.

QUIESCENT STAGE

In a considerable majority of patients there is a stage, following the onset and preceding the terminal collapse, in which the patient is fairly comfortable. The signs of shock disappear and the pain remains only as a dull ache over the areas of radiation.

At times exertion may cause a partial return of the pain but seldom to the severity experienced at the onset. In the extremities wherein arterial pulsation is absent, gangrene does not develop as would occur in true thrombosis or embolism. The extremity merely remains cool with a gradual return of sensation and motion. Owing to slow leakage through the adventitia, more and more fluid may accumulate in the chest, usually on the left side. There may be urinary or digestive complaints if vessels supplying the abdominal organs are involved in the dissection. The patient may have a low grade fever during this stage, seldom reaching 101 F., and at times a subnormal temperature may exist. The physical signs found at the onset remain fairly constant, such as murmurs over the heart and arteries, elevated blood pressure, cardiac enlargement and increase in mediastinal dullness. Occasionally during this period it may be noticed that there is venous distention due to mediastinal blockage. This stage may last from a period of minutes to several years but is usually a matter of days.

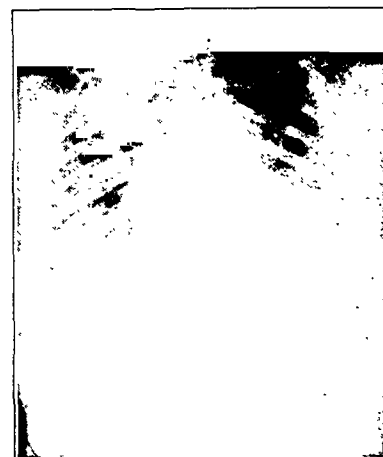


Fig. 1.—Appearance of chest in case 1, showing marked cardiac enlargement and increase in mediastinal shadow in first and second interspaces.

TERMINATION

Generally the curtain falls on the third and final act in this clinical drama as suddenly as it rises on the first. The patient is usually resting comfortably and makes some slight movement, such as turning in bed or raising

19. Whitman, R. G., and Stein, H. B.: A Contribution to the Pathogenesis of Dissecting Aneurysms: A Case of Dissecting Mesoarthritis (Babes and Mironescu) Without Dissecting Aneurysm, *J. M. Research* 44: 579-592 (Sept.) 1924

20. Draper, W. H.: Case of Dissecting Aneurysm of the Aorta, with Plugging of the Arteria Innominate, by a Portion of the Internal Coat of the Vessel, and Rupture of the Pericardial Sac, *M. Rec.* 1: 32-33, 1866.

his head, when without warning he gasps for breath or cries out with pain and falls back on his pillow and in two or three minutes is dead. This terminal collapse is evidence of rupture through the outer coat of the aorta, most frequently into the pericardium or, at times, into the left pleura. In rare cases the end comes as a slow and gradual process simulating congestive heart failure or uremia. When reentry occurs into the original lumen

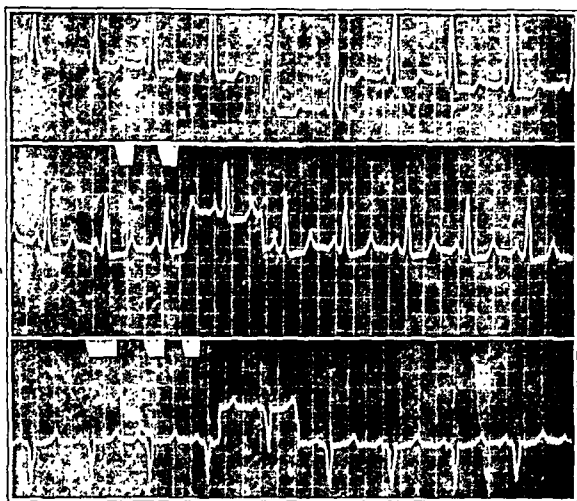


Fig. 2.—Tracing in case 1, January 10. (Figures 2-7 show serial electrocardiograms made each day the patient was in the hospital. The changes observed are probably due to disturbance of the coronary blood flow from dissection of the aneurysm about the coronary arteries.)

of the vessel with the formation of a so-called double aorta, death may not take place for years and then as a result of some intercurrent infection, trauma or other entirely unrelated causes.

LABORATORY OBSERVATIONS

The urinary changes, as a rule, are those consistent with moderate kidney damage; i. e., varying degrees of albuminuria, pyuria, hematuria and cylindruria. There is usually some anemia present, but as to how much of this is due to the dissecting aneurysm and how much is due to the associated nephritis it is yet uncertain. There is present usually a distinct leukocytosis ranging from 9,000 to 30,000 with a relative polymorphonuclear increase. Electrocardiographic studies have been made in only seventeen cases and the results have been rather inconstant; however, left axis deviation and changes in the T waves have been the most constantly observed features.

Roentgenographic features have been carefully studied by Wood, Pendergrass and Ostrum²¹ with the following observations: There is usually a deformity of the supercardiac shadow, which may or may not pulsate under the fluoroscope. This deformity may be an arcuate excrescence arising from any portion of the thoracic aorta. At times a shadow may be seen along an aortic branch, and this is the most pathognomonic of all x-ray appearances. There is at times displacement of the trachea and esophagus, and at times a non-fatal leakage may be evident as a pleural effusion, usually left sided or as a mediastinal infiltration. Cardiac hypertrophy is nearly always present.

Since syphilis is a rarity in these cases, the blood Wassermann reaction is usually negative.

The blood chemical studies are of little value. The chemical constituents are usually within normal limits; in some patients there is a tendency toward a terminal rise of retention products, which is probably due to continued disturbance of the kidney circulation.

DIFFERENTIAL DIAGNOSIS

Coronary occlusion with cardiac infarction is the most confusing condition to differentiate. The sudden, terrific, tearing pain occurring during exertion, characteristic of dissecting aneurysm, is not encountered as a rule in coronary occlusion, in which the development of the pain is somewhat slower and is oppressive rather than rending. Shock accompanies both conditions but is more sudden in dissecting aneurysm. The site of onset of pain may be the same, although usually that in coronary occlusion is fairly low in the chest, beneath the sternum, with radiation to the neck and left inner arm, while the pain in dissecting aneurysm begins high in the chest, behind the sternum, and radiates to the back in either the thoracic or the lumbar region. A pericardial friction rub has not been observed in dissecting aneurysm. The more or less constant electrocardiographic signs in coronary occlusion have not been found in dissecting aneurysm, although changes suggestive of this are reported, as in one of our cases. Definite x-ray appearances in dissecting aneurysm would aid greatly in diagnosis, while blockage in circulation does not occur in coronary thrombosis except as a late embolic phenomenon. Pleural effusion is also very rare in coronary occlusion. Angina pectoris may be quickly discovered by its response to vasodilators, absence of shock and the like.

Saccular aneurysm should present no great difficulty, owing to its relatively insidious onset, erosion of bone and roentgenographic features, even though at times it may give definite circulatory changes. Cardiac hyper-

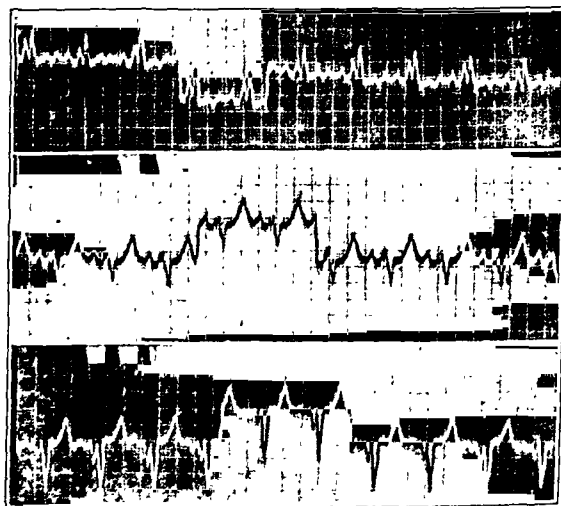


Fig. 3.—Tracing in case 1, January 11.

trophy is also rare with saccular aneurysm, and there is usually a syphilitic history or positive blood Wassermann reaction.

Cerebral hemorrhage, unless it occurs simultaneously with the dissection, can be ruled out by the absence or diminution in carotid pulsation on one or both sides or at times by spinal puncture.

Spontaneous collapse of the lung may be discovered by careful examination of the chest and the use of the x-rays.

21. Wood, F. C.; Pendergrass, E. P., and Ostrum, H. W.: Dissecting Aneurysm of the Aorta with Special Reference to Its Roentgenographic Features, *Am. J. Roentgenol.* 28: 437-465 (Oct.) 1932.

Pulmonary embolism, with its preceding history of surgery or auricular fibrillation and its extreme and progressive shock and cyanosis, may be ruled out fairly readily.

A mediastinal new growth or abscess which may appear confusing on x-ray examination should be easily distinguished from a purely clinical standpoint as to history and examination.

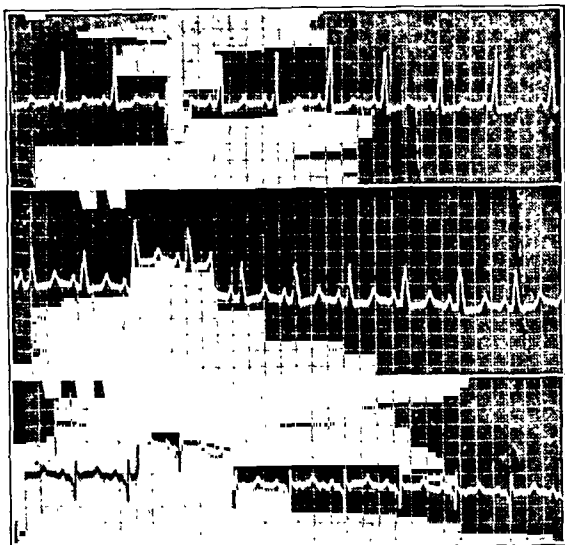


Fig. 4.—Tracing in case 1, January 12.

The acute abdominal conditions such as ruptured peptic ulcer, cholelithiasis or nephrolithiasis may at times be confusing, especially in the rare type of dissecting aneurysm in which the rupture is in the abdominal aorta. Here only a complete history and examination with especial emphasis on circulatory phenomena may be the means of arriving at a correct conclusion.

REPORT OF CASES

The following cases have not been reported in the literature prior to this time. In the first three it was possible to make a definite antemortem diagnosis, while in the other this condition was not recognized before an autopsy was performed.

CASE 1.—A. H., a Negress, aged 32, a hair dresser, seen at Emory Division of Grady Hospital, Nov. 4, 1929, complained of dimness of vision. Sluggishness of the right pupil and a positive blood Wassermann reaction were the only positive manifestations. She did not return for treatment. She was next seen March 23, 1932, complaining of smothering spells at night and irregular menses. The blood pressure was 200 systolic, 140 diastolic. The retinal vessels were moderately sclerotic, with a few hemorrhages and exudates. X-ray examination of the heart showed moderate enlargement with a normal aortic shadow. The heart sounds were normal except for slight slurring of the aortic second sound. The blood Wassermann reaction was negative. A diagnosis of malignant hypertension was made. One year later the blood pressure was 216 systolic, 140 diastolic and her general condition was much the same. She felt fairly well except for occasional headache and vertigo until Jan. 8, 1935, when at 1:30 p. m., while curling a patron's hair, she had a sudden terrific, stabbing pain beneath the lower third of the sternum. She immediately stopped working and stood motionless, but the pain persisted and seemed to spread to the epigastrium. She was then assisted to a cot and lay still in intense agony. About ten minutes after the onset she was given half a glass of warm salt water, which she vomited at once without relief. About five minutes later the intense substernal pain spread rather rapidly to the

right shoulder and right groin and then involved the entire right arm and leg, and she was unable to move either of these. All this occurred within thirty minutes after the sudden onset. She arrived at the Grady Hospital at 4 o'clock still suffering intense pain beneath the sternum, in the epigastrium and in the right arm and right leg. The right arm and leg could not be moved. She was sweating profusely and complained of being unable to see. She was extremely restless. She was treated in the emergency clinic and then admitted to the medical ward.

Physical examination three hours after onset revealed the following: The blood pressure was 160 systolic, 90 diastolic in the left arm and not obtained in the right. The temperature was 99 F., the pulse 100 and the respiration rate 24. The pain had almost ceased by the time she was placed in bed. The skin was still slightly moist. She complained of being unable to see. The pupils were equal and active. The fundi showed marked retinal arterial sclerosis and a few old exudates. The right carotid artery seemed to pulsate a bit more vigorously than the left. From the subclavian artery on the right throughout the entire upper extremity no arterial pulsation could be felt, while the arteries of the left upper extremity pulsated normally. The right arm felt slightly cooler than the left. There was no palpable suprasternal pulsation. The trachea was in the midline without any tug. The chest appeared symmetrical, and expansion was fair and equal. Over the left base posteriorly there was a slight dullness, diminished whispered voice and breath sounds, and diminished tactile fremitus. Elsewhere the lungs appeared normal.

The apex beat of the heart was 11 cm. to the left of the midline in the fifth interspace. The right border was 3 cm. from the midline in the fourth interspace. The total aortic dullness was 9 cm. No shocks or thrills were present. At the apex the cardiac sounds were of fair muscular quality with a soft short blowing systolic murmur transmitted toward the base. Over the aortic area there was also heard a soft short systolic murmur transmitted slightly toward the neck. The aortic second sound was accentuated and reverberating and was followed by a questionable short diastolic blow.

The abdomen was obese and moderately tender throughout with marked tenderness in the right inguinal region. No

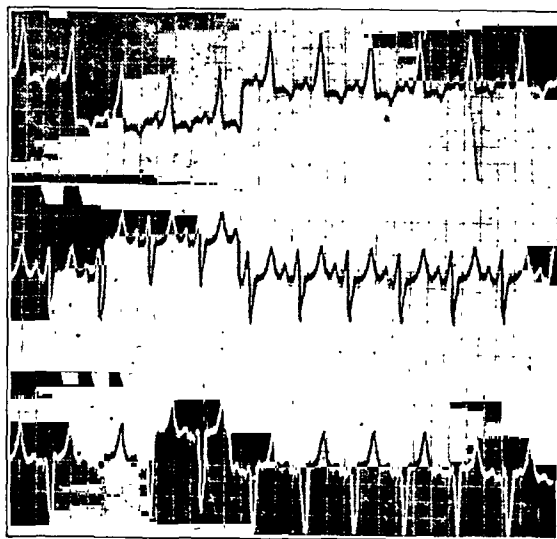


Fig. 5.—Tracing in case 1, January 13.

viscera were felt. No fluid was demonstrated. Arterial pulsation appeared normal throughout the left lower extremity but none was felt in the arteries of the right leg. The blood pressure in the left leg was 170 systolic, 110 diastolic and was not obtained in the right. The skin of the right leg was cooler than that of the left. The right arm and leg could be moved voluntarily with difficulty and appeared weak. Tactile sensation in the right arm and leg was moderately diminished. All reflexes appeared normal except the knee jerk, which was sluggish on the left and absent on the right.

A diagnosis of dissecting aneurysm was made.

For the next few days there was very little change in her condition. She complained of some indefinite epigastric pain. Within twenty-four hours after the onset her vision had returned and after the third day the right arm could be moved, but the right leg remained very weak. The temperature was about 99 F. January 14 the blood pressure in the left arm was 170 systolic, 110 diastolic; no pulsation was palpable in either

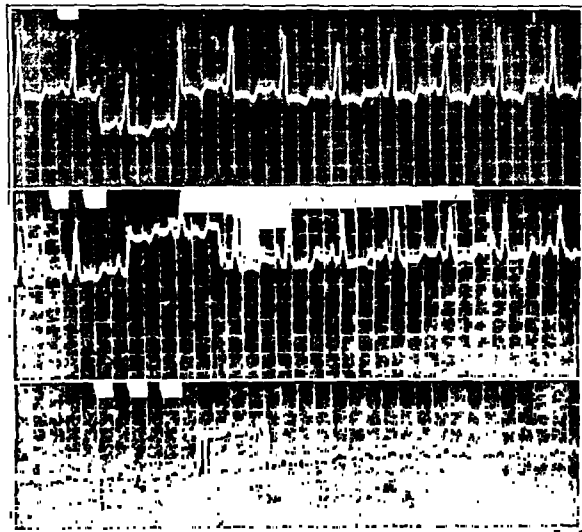


Fig. 6.—Tracing in case 1, January 14.

the right brachial, radial or femoral arteries. There was no evidence of gangrene in either extremity and the right limb was 1 degree cooler than the left. Two days later (January 16) the patient complained of feeling very hot and as though she were suffocating. Severe hiccups developed and she died rather suddenly and quietly within five minutes after their onset.

On admission the red blood cells numbered 3,910,000 and the white blood cells 12,000, with 85 per cent polymorphonuclears. The blood chemistry was normal. The urine contained a trace of albumin and numerous fine and coarsely granular casts. The spinal fluid was normal and the blood and spinal fluid Wassermann reactions were negative. January 14 the blood nonprotein nitrogen rose to 250 mg. per hundred cubic centimeters, creatinine 3.0 mg. The sedimentation rate was normal. Blood culture was sterile.

In a roentgenogram of the chest at a distance of 6 feet the heart distance from the midline to the most distant left border was 12.5 cm., the distance from the midline to the most distant right border was 5 cm., the diameter of the thorax was 26 cm., and the maximum aortic shadow was 9 cm.

Autopsy was performed twenty-four hours after death by Dr. Jack C. Norris. The body was well developed and obese; it was examined after it had been embalmed. There was no edema of the extremities, no marked distention of the abdomen and no evidence of external hemorrhage. Examination was limited to the thoracic cavity.

There were numerous fibrinous adhesions between the left lung and the chest wall; the left lung seemed partially collapsed. There was about 200 cc. of blood tinged fluid in the left pleural cavity. The upper mediastinum and about the hilus of the left lung were infiltrated with what appeared to be a partially organized blood clot.

The pericardium contained about 800 cc. of clotted blood. The heart weighed 500 Gm. The heart was definitely enlarged by hypertrophy of the left side; the left ventricular wall measuring 3 cm. in thickness and was otherwise normal.

The aorta measured 4 cm. in circumference, and several slightly elevated yellowish areas were observed that appeared to be early arteriosclerotic changes. The coronary ostia were somewhat narrowed. The wall of the aorta was thinner than normal and the adventitia was loosely connected. There was a transverse rupture about 2.5 cm. above the valve. The blood had descended through the outer third of the media and had escaped down into the pericardial cavity. The dissection

involved almost the entire circumference of the aorta, from the coronary ostia throughout the entire extent of the thoracic aorta, and also involved in the same way the vessels, leaving the aortic arch.

CASE 2.—J. W., a Negro, aged 41, a truck driver, admitted to the medical service of the hospital about 7 a. m., Oct. 25, 1933, stated that he had been entirely well all his life aside from the actual childhood diseases and an occasional attack of urethritis. He arose on the morning of October 25 feeling as usual and was attempting to draw a bucket of water from the well when he suddenly felt a viselike pain beginning at the base of the neck on the right and running, with a tearing sensation, diagonally across the chest to the left nipple, and from there down the left side to the left hip. He felt weak and dizzy and broke into a cold sweat but did not lose consciousness. After sitting down for several minutes he found that the pain had become much less severe and changed to a dull ache over the area of its original radiation. Dyspnea, which appeared at the onset, became much less marked. He later walked to the house and ten or fifteen minutes later ate breakfast and started to work. He walked about two blocks, when he had a second attack of pain exactly as before and in addition his left leg suddenly became numb and gave way under him. He caught at a lamp post to keep from falling and lowered himself to a sitting position on the curbing. His pain continued to be very severe and he was carried by friends to the hospital for treatment.

Physical examination on admission revealed blood pressure of 160 systolic, 94 diastolic in both arms. The temperature was 98.6 F., the pulse 80 and the respiration rate 24. He was complaining of extreme substernal pain and was moderately dyspneic. The pupils were equal and active. The fundi showed only moderate arteriosclerosis. The head and neck were otherwise normal. Expansion of the chest was fair and equal and the lungs were clear and resonant. The cardiac impulse was 10 cm. to the left of the midline in the fifth interspace; the left border of dullness extended 11 cm. in the fifth interspace. The right border of dullness was 4 cm. in the fourth interspace and the aortic dullness in the second interspace was 9 cm. There were no shocks or thrills. The heart sounds were of fair muscular quality and there was a soft systolic murmur at

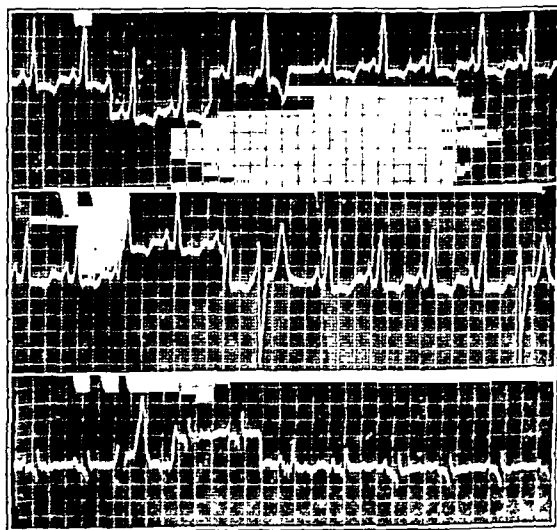


Fig. 7.—Tracing in case 1, January 15.

the apex transmitted toward the base. The aortic second sound was slightly accentuated. There was definite tenderness in the left lower abdominal quadrant but no mass, thrill or bruit could be demonstrated. There was slight weakness in both arms but the reflexes and arterial pulsations were normal, as were those of the right lower extremity. In the left leg there was a complete loss of arterial pulsation in the femoral and popliteal arteries. The skin of the left leg felt slightly cooler than that of the rest of the body but was not cold and showed no sign of gangrene. There was a loss of superficial sensation

over the foot, ankle and lower half of the left leg. Joint and muscle sense was intact. The patient was able to move his extremity only slightly. The deep reflexes were normal.

On admission the red blood cells numbered 3,920,000, hemoglobin 70 per cent, white blood cells 13,350 with 85 per cent polymorphonuclears; urinalysis revealed specific gravity 1.028 and albumin 3 plus with from 5 to 6 granular casts, from 5 to 6 pus cells, and 1 red blood cell per field. October 27 blood



Fig. 8 (case 1).—Heart and aorta showing the rupture and dissection of the aneurysm.

chemistry showed nonprotein nitrogen 100 and creatinine 1.8 mg. per hundred cubic centimeters. The blood Wassermann reaction was negative. An x-ray film of the chest was made with the patient in bed and revealed a peculiar diffuse widening of the upper mediastinum.

Clinical diagnosis was transverse rupture of the aorta with dissection to and blockage of the left iliac artery by a hematoma.

The temperature rose to 99.8 October 26 and to 100 October 27. The patient complained of occasional attacks of substernal pain but between the paroxysms he was fairly comfortable. The sensation and use of the left leg returned very slightly but no pulsation was observed in the arteries. The only drug given was morphine. At 1 p. m., October 27, he sat up in bed and fell back unconscious and died quietly three minutes later.

Postmortem examination by Dr. Norris revealed a small amount of uncoagulated bloody fluid in both pleural sacs. In the upper mediastinum and around the hilus of both lungs there was a moderately bloody infiltration. The pericardium contained 500 cc. of liquid and coagulated blood. The heart weighed 850 Gm. The valves were normal throughout. The aorta was markedly sclerotic. There was a transverse slit 2.5 cm. above the aortic valves. From this point the blood had dissected back toward the heart and ruptured through the remaining media and adventitia into the pericardium. The dissection distally involved from one half to two thirds of the aortic circumference but was mainly on the posterior part of the media but at times reached the adventitia. The dissection extended downward in the left iliac artery, where it formed a hematoma and almost completely occluded the lumen of the artery. A small quantity of blood had also escaped into the retroperitoneal tissue. The kidneys showed moderate chronic glomerulonephritis.

Anatomic diagnoses were (1) transverse rupture of the aorta with dissection and blockage of the left iliac artery by an intramedial clot, (2) hemopericardium and (3) generalized arteriosclerosis and chronic glomerulonephritis.

CASE 3.—W. E., a Negro, aged 39, the driver of an ice wagon, admitted to the hospital, April 28, 1926, had had measles, whooping cough and smallpox as a child. In 1915 he passed a small renal calculus; in 1918 he had influenza and in 1920 he had typhoid. He had worn glasses for several years because of poor vision but considered himself in perfect health at the onset of the present illness. At noon, April 28, as he stepped into his wagon he had a sudden attack of severe agonizing pain

beneath the upper sternum, which radiated to the right lower quadrant of the abdomen. There was also some radiation to the back and to the right arm. The patient fell in the street and was unable to move for thirty minutes, even though he had been given one-fourth grain (0.016 Gm.) of morphine soon after his collapse. At the end of thirty minutes he felt much better but in attempting to rise found that his right arm and leg were numb and weak. The patient was carried to the hospital and admitted to the surgical service with a diagnosis of renal colic.

On physical examination the patient was well developed, well nourished and robust; he was lying on his back in bed, breathing rapidly and apparently in some pain. The temperature was 97 F., the pulse 60 and the respiration rate 28. The head was essentially normal except for the eyegrounds, in which there was slight haziness of both disks, with moderate sclerosis of the retinal vessels. No hemorrhages or exudates were seen. Both carotid arteries were pulsating vigorously. No venous distention or tracheal tug was present. There was a very slight systolic pulsation seen over the manubrium but it was not palpable. Expansion of the thorax was free and equal. The lungs were clear and resonant throughout except for a slight wheezy prolongation of expiration. The heart was moderately enlarged to the left. The apex impulse in the fifth interspace was 2 cm. outside the midclavicular line; the beat was forceful and thrusting in character. The retromammary dullness was 9 cm. in the first interspace and 8 cm. in the second, more to the left than to the right. Heart sounds were clear and muscular at the apex without murmurs. Over the aortic area there was a blowing to and fro murmur, the systolic phase of which was transmitted well into the vessels of the neck. The blood pressure was 160 systolic, 80 diastolic in both arms. The left femoral artery was pulsating vigorously and there was a systolic thrill and bruit over the left inguinal region. The right femoral artery could be felt, but there was no visible or palpable pulsation; neither was there any pulsation in the other vessels of the right lower extremity, while pulsation in the vessels of the left was easily felt.

The abdomen was flat and symmetrical and held in boardlike rigidity. There was marked generalized tenderness but especially in the right lower quadrant and right inguinal region, where a soft, irregular, tender mass was felt apparently beneath the skin. No abdominal viscera were felt.

In the right lower extremity no deep reflexes were obtained and the skin was cold as far as the upper third of the thigh. No abdominal reflexes were obtained.

The patient continued to have paroxysms of extreme pain radiating over the same areas as his original attack. A diagnosis was made of dissecting aneurysm of the aorta with compression of the right iliac artery. He had a fairly comfortable night (the temperature rose to 100) but at 12:30 p. m., April 29, he complained of sudden terrific pain in the precordium and died in three or four minutes.

The red blood cell count nine hours after admission was 2,090,000. White blood cells on admission numbered 14,140 with 86 per cent polymorphonuclears. The spinal fluid was under slightly increased pressure but was otherwise normal. X-ray films revealed the heart markedly hypertrophied transversely and obliquely. The thoracic aorta was definitely enlarged but no distinct aneurysm was seen. There was no erosion of the vertebra. The blood Wassermann reaction was negative.

Autopsy was performed six hours post mortem by Dr. Norris with the following significant observations: The pericardium was distended with freshly clotted blood, which apparently



Fig. 9 (case 2).—Appearance of the chest.

entered through a rent in the outer coat of the aorta 0.7 cm. long located 1 cm. above the heart. The heart was moderately hypertrophied and firm. No evidence of valvular disease was found. The aorta was the site of only moderate atheroma. There was a transverse rupture of the aorta about 1 cm. above the valve cusps about 3 cm. long and rather stellate in character at one end. Dissection was carried from this point throughout the entire length of the aorta almost entirely surrounding the original lumen. The innominate, left carotid and subclavian and right iliac were also dissected as far as they were observed. Blood had escaped through the intima in the retropleural areas of the thorax and in the upper mediastinum as well as retroperitoneally in the right inguinal region. The kidneys showed a moderate chronic glomerulonephritis.

Anatomic diagnoses were (1) dissecting aneurysm of the aorta, (2) hematompericardium, (3) chronic glomerulonephritis, (4) moderate atheroma of the aorta and moderate generalized arteriosclerosis.

CASE 4.—A white man, aged 54, an executive secretary, had complained of bilious spells for the past eight years. In 1925 he had a nervous breakdown (?) and since that time he had had occasional attacks of substernal pain without radiation. July 15, 1927, he consulted Dr. R. S. Leadingham because of shortness of breath, which had been present for the past six months, as well as dry cough for six weeks and general malaise. About July 2 he had had epigastric discomfort requiring a hypodermic for relief (?). Following this attack he had an irregular low grade fever, paroxysms of coughing and moderate

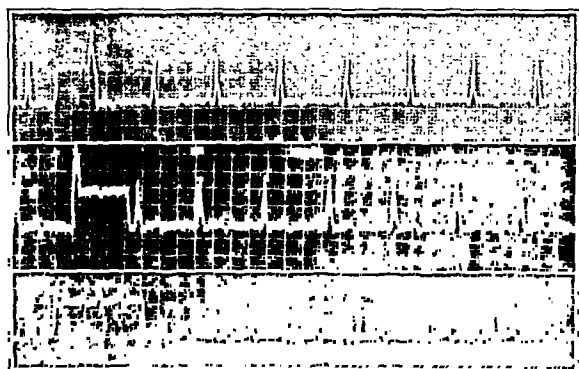


Fig. 10 (case 2).—Tracing made the second day after onset.

dyspnea but no severe pain. He improved on rest in bed but was still moderately dyspneic and "had never regained his strength."

Physical examination revealed a pulse of 96 and a blood pressure of 140 systolic, 100 diastolic. There were a few moist râles over both lung bases. The apex impulse was diffuse and weak and the left border of dullness was 13.5 cm. in the fifth interspace. There was a blowing systolic murmur at the apex transmitted slightly toward the axilla. The liver was felt two fingerbreadths below the costal margin. There were no eye-ground changes. The blood Wassermann reaction was negative. Analyses of the urine revealed specific gravities of 1.015 and 1.020 with a trace of albumin. Red and white blood cell counts were normal. X-ray examination of the gastro-intestinal tract and the gallbladder gave normal results. X-ray examination of the chest revealed increased density in both bases, the heart diffusely hypertrophied and the aorta normal in size. July 18, an electrocardiogram was reported as showing left ventricular predominance and chronic myocarditis (diffuse). July 23 the patient was placed in the hospital; the blood pressure was 160 systolic, 110 diastolic and the rest of the physical examination as previously given. On rest and small doses of digitalis he improved and he was dismissed August 18, at which time the blood pressure was 138 systolic, 88 diastolic. He returned to work about September 10 and had no further trouble until the morning of October 5, when he arose feeling well and after a normal bowel movement he was seized with a sudden severe substernal pain with radiation to the epigastrium and collapsed. He did not regain consciousness. The pulse could not be felt nor could the blood pressure be obtained; only an occasional heart beat was heard. He died six hours later.

The diagnosis was coronary occlusion. Autopsy revealed the heart moderately hypertrophied. No valvular disease was seen. The myocardium was generally friable but there were no discrete areas of degeneration or of infarction. The aorta contained numerous raised patches of atheroma. At the arch there was a rupture of the intima and from this point for about 15 cm. down the thoracic aorta there was dissection, the cavity being filled with fresh blood. In the right coronary artery there was a small clot that showed beginning organization, but no myocardial change was visible distal to this.

Anatomic diagnoses were (1) dissecting aneurysm of the aorta, (2) cardiac hypertrophy and dilatation, (3) atheromatous aorta and (4) early coronary occlusion.

CASE 5.—J. S., a Negro man, apparently about 40 years of age, was admitted to the medical service in extreme shock. No history was obtained as the patient was brought in by the police, having been found unconscious. The blood pressure was not obtained. The heart sounds were barely audible. Numerous medium moist râles were present throughout both lungs. The skin was cold and clammy. The pulse rate was 48 per minute. The eyegrounds showed marked sclerosis. The urine was negative for sugar. Blood chemistry revealed: nonprotein nitrogen 100, creatinine 3.3, Wassermann reaction negative. Red blood cells numbered 3,500,000, white blood cells 11,650 with 81 per cent polymorphonuclears. A diagnosis of uremia with possible Stokes-Adams syndrome was made. The patient was given various stimulants and fluids but without results. He died quietly eight hours after admission.

On postmortem examination both lungs were found moderately congested. The pericardium was normal. The heart was firm and weighed 500 Gm. The interventricular septum showed numerous old petechial hemorrhages. The aorta showed marked arteriosclerosis. There was a transverse rupture 5 cm. in length 1.5 cm. above the aortic valve. Dissection extended along the posterior aspect of the aorta in the outer media to the third lumbar vertebra. This cavity contained old clotted blood. The intercostal arteries were torn from the original aortic lumen. There were several ulcerated areas in the upper abdominal aorta but no communication with the aneurysmal cavity in this area. There was no external rupture of the aorta. The kidneys showed subacute and chronic glomerulonephritis.

Anatomic diagnoses were: (1) rupture of the aorta with dissecting aneurysm, (2) subacute and chronic glomerulonephritis, (3) generalized arteriosclerosis with marked atheroma of the aorta and (4) chronic myocarditis.

CASE 6.—Mrs. J. B., a white woman, aged 32, was first seen Sept. 18, 1930, at which time she was admitted to the obstetric service with a diagnosis of placenta praevia. She had had four normal deliveries. She last menstruated in May 1930. She felt well until about August 1, at which time she began to have slight shortness of breath, edema of the feet and ankles, and headache. These symptoms grew progressively worse until the night before admission, when she suddenly passed about 1 pint of blood from the vagina. On admission to the hospital she was still passing an occasional dark clot. Blood pressure was 210 systolic, 150 diastolic. No fetal heart sounds were heard or movements felt. The urine contained moderate albumin and innumerable pus cells and a few red blood cells. Numerous moist râles were present over both lung bases. Labor was induced and the patient was delivered of a 3½ pound (1,588 Gm.) stillborn male. She made a rapid recovery and left the hospital September 27 in apparently good condition.

She was readmitted to the medical service November 5, complaining of cough and shortness of breath. She had had intermittent edema of the feet and ankles since her first admission and had a small hemoptysis two days prior to admission. Examination revealed râles over both bases, moderate left sided cardiac hypertrophy with a gallop rhythm, a blood pressure of 180 systolic, 120 diastolic and edema of the feet and ankles. She was put on digitalis and improved rapidly. The specific gravity of the urine was 1.011, with trace of albumin and innumerable pus cells. The basal metabolic rate was plus 19. The blood Wassermann reaction was negative. Chemistry of the blood revealed a nonprotein nitrogen of 33.3 and creatinine of 1.6; red blood cells numbered 3,490,000 with hemoglobin 60 per cent, white blood cells 10,250 with 50 per cent polymorphonuclears. The patient was discharged improved, November 12.

She was not seen again until Aug. 23, 1932, when she was admitted to the obstetric service at 9:45 p. m. She appeared to be about five months pregnant. She stated that she had felt fairly well until about August 15, when she had a cramping spell (?) and since that time had been apprehensive and had spots before her eyes, vertigo and slight shortness of breath. The left arm had felt dead for twelve hours before admission. Examination revealed numerous musical râles over both lungs. The heart seemed in fairly good condition. The blood pressure was 170 systolic, 120 diastolic. Diagnoses of preeclampsia and bronchial asthma were made. The patient seemed to be resting fairly well until about 2 a. m., August 24, at which time she complained of cramping pain in the chest and a choking sensation. She was given $\frac{1}{150}$ grain (0.0004 Gm.) of atropine and seemed to improve slightly. At 5 o'clock she complained of a severe pain in the upper part of the back and she soon went to sleep again. At 6:55 stertorous breathing developed and she died suddenly three minutes later.

Autopsy was performed four hours later and she was found to be seven months pregnant. In the right pleural cavity there was a small amount of pinkish fluid. The pericardial cavity contained 500 cc. of partially clotted blood. The left ventricle was markedly hypertrophied. The aorta was thin, hypoplastic and moderately sclerotic; there was a transverse rupture just above the aortic valves. Dissection was confined to the base of the aorta with an external tear through the adventitia into the pericardial sac. The kidneys showed moderate chronic nephritis.

Anatomic diagnoses were: (1) hypoplastic aorta with moderate arteriosclerosis, (2) transverse rupture of the aorta with hemopericardium, (3) moderate chronic nephritis and (4) pregnancy, seventh month.

SUMMARY OF CASES REPORTED IN THE ENGLISH LITERATURE

Pannhorst²² in 1932 found 133 cases out of 250 in which there were enough data for clinical study. These cases were mainly from the German literature. From the English literature, up to the present date, we have been able to collect 127 cases with clinical data which are presented in the following paragraphs. In a number of these cases important features were omitted, so that the review is to some extent incomplete.

In the 127 cases studied, the age was given in ninety-five. The youngest patient was 17 (Hall) and the oldest 76 years. Two died in the second decade, four in the third, twelve in the fourth, eighteen in the fifth, twenty-seven in the sixth, twenty-four in the seventh, seven in the eighth and one in the ninth.

The sex was given in ninety-three cases, sixty-nine being males and twenty-four females. The race was given in ninety-seven cases, eighty being white and seventeen Negroes.

A history of hypertension was given in sixty cases and exertion at the time of onset was mentioned in thirty-three. Pregnancy was present in six.

Pain was present in eighty cases, substernal in eleven, precordial in thirty-nine, epigastric in fifteen, between the shoulder blades in eleven, lumbar in four, and in the left shoulder in one. The character of the pain in forty-four cases was shooting in eleven, tearing in thirteen, dull in eleven, and viselike in nine. Its duration was minutes in two cases, hours in ten, days in three. Radiation was described in twenty-six cases, epigastric in nine, between the shoulder blades in six, lumbar in six, in the right shoulder in three, and in the left shoulder in two.

Shock was mentioned in forty-four cases and was present five minutes in three, fifteen minutes in four, hours in fifteen and days in one. In twelve cases there was no acute onset.

As associated symptoms there was a temporary loss of vision in eight cases, fainting in thirteen, numbness in the arms or legs in twelve and paralysis in twenty-three, of which twelve were hemiplegias. The right arm was involved in one case, the left arm in one, the right leg in four, the left leg in three, and both legs in two. There was bloody sputum in four, dyspnea in thirty, choking in three, cyanosis in six and gastro-intestinal symptoms (nausea and vomiting) in twenty-two.

Fear of impending death was present in six cases, and in one case this was observed prior to the onset of symptoms.

In forty-four cases there was a period in which the patient was relatively free from symptoms lasting hours in six, days in twenty-nine, months in five, and years in two.

Physical examination revealed fever in thirty-three cases. The pulse was slow and regular in five, slow

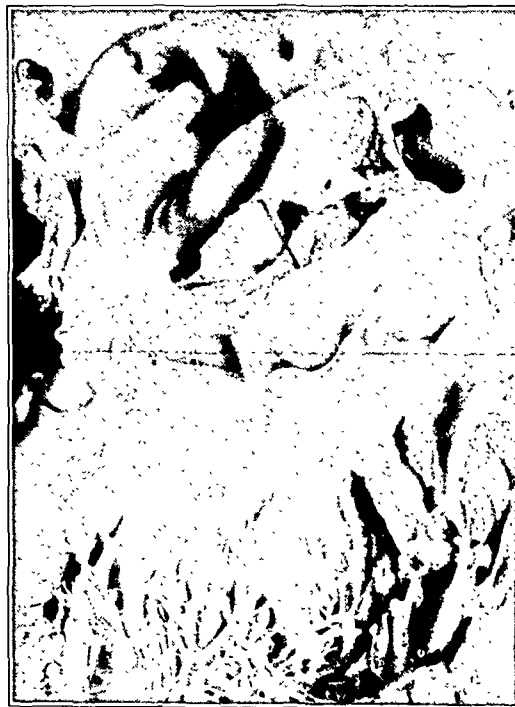


Fig. 11 (case 2)—Aorta showing the rupture and the beginning of the dissection.

and irregular in three, fast and regular in nineteen, fast and irregular in four. There was an increase in cardiac dullness in forty-four, with fluid at the right base in three and at the left base in seventeen. A systolic murmur was heard in fourteen, diastolic in two and a to and fro murmur in sixteen. Râles were present in the lung bases in fourteen cases. There was an absence of pulsation in the right carotid in three, left carotid in one, right radial in four, left radial in two, right leg in three, left leg in four. Pulsation was present but diminished in the right arm in three, right leg in one, and both carotids in one. Blood pressure was reported in fifty-two cases and was high in thirty-seven, low in eleven and normal in four.

The urine was studied in twenty-four cases and contained albumin in twenty-one cases, white blood cells in sixteen, casts in fifteen, red blood cells in nine; specific gravity was high in nine and low in five. The blood was examined in thirty-one cases and leukocytosis was present (9,000-31,000) in twenty-nine cases, a

22. Pannhorst, R.: Symptomatology und Diagnose der Aortenruptur und des Aneurysma dissecans, Deutsches Arch. f. klin. med. 175:115-123, 1933.

normal white blood count in two, a normal red blood count in four, and anemia in five.

Electrocardiographic records were obtained in fifteen cases with left axis deviation in eight, and right in one, inverted T_1 in eight, T_2 in three, T_3 in three, myocardial disease in four, auricular fibrillation in two, extrasystoles in five, and one was normal.

X-ray examination was done in twenty-two cases and showed an increased aortic shadow in sixteen, cardiac hypertrophy in nine, pleural effusion in eight and a shadow surrounding a vessel in one.

The location of the intimal rupture was given in seventy-nine cases, ten of which were multiple. The site of rupture was the base of the aorta in forty-two cases, the arch in seventeen, the descending aorta in sixteen and the abdominal in four. Terminal rupture was described in sixty-nine cases, fifty-one of which were into the pericardium, fifteen into left pleura and one each in the right pleura, abdominal cavity and pulmonary artery. There was reentry into the aortic lumen in nine cases and one reentry into the innominate lumen.

The dissection involved only a small portion of the aorta in eleven cases, approximately half of the aorta in thirty-two cases and the entire length of the aorta in thirty-two cases. Syphilitic involvement of the aorta was present in only six cases.

This summary agrees fairly closely with the cases studied by Pannhorst except for his finding eight cases of dysphagia and four cases of extreme thirst. These manifestations were not present in our series of cases.

SUMMARY

Of six patients with dissecting aneurysm of the aorta a correct antemortem diagnosis was made in three; the diagnosis was not made in one patient who was moribund and for whom no history was obtainable on admission to the hospital; in another the diagnosis of coronary occlusion was made and in one other the patient had a complicating pregnancy and eclampsia. It is believed that more correct diagnoses can be made if particular attention is directed to a careful history of the onset and progress of the symptoms with a meticulous physical examination. The x-ray examination is of value as confirmatory evidence and the electrocardiogram may be of some help, particularly if tracings are made each day. An existing hypertension, with perhaps a sudden sharp increase in the arterial pressure, is the provoking cause of rupture in the majority of patients.

1010 Medical Arts Building.

Never Known to Be Late.—During one of his flying trips to America some years ago, as always with engagements innumerable, he took time to go from Baltimore to Boston for the single purpose of seeing a surgical friend with literary tastes who for some months had been bedfast with a decompensated heart; and James Mumford, for it was he, always said that this unannounced visit was what put him on his feet again. I knew of his doing the same thing for an Edinburgh physician of whose illness he heard by chance just as he was leaving the steamer in Liverpool. He was due for an address before the British Medical Association in Oxford, but without hesitation he took the first train to the north and managed to get back to Oxford just in time for the address, blithe and gay as though he had not spent two nights on the train. Indeed he was never known to be late and was somewhat intolerant of tardiness in others.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

MYELOMALACIA WITHOUT THROMBOSIS FOLLOWING INDIRECT TRAUMA (STRAIN)

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The clinical diagnosis of acute transverse myelitis or hematomyelia is frequently made in cases of acute paraplegia or quadriplegia in which at autopsy the cord shows an extensive softening. The myelomalacia may be due to a thrombosis of the anterior spinal artery or to an occlusion of some other vessel or vessels of the spinal cord. Very often there is no microscopic evidence of inflammation or hemorrhage into the cord substance. In many cases the thrombosed vessel is found to be thickened and infiltrated with inflammatory cells, having the appearance of syphilitic arteritis. Most of these cases do not give a history of an injury. However, several cases have been reported of acute paralysis of spinal cord origin due to myelomalacia following a trivial trauma such as a strain. Ornsteen¹ stresses the fact that in diagnosing thrombosis of the anterior spinal artery the absence of direct and violent trauma to the spinal column is of great importance. He emphasizes that the nature of the trauma in thrombosis is not violence but strain, as in lifting or overexertion. Spiller² reports a case in which the first symptoms of paralysis developed within fifteen minutes after the patient had been lifting heavy blocks of ice. At autopsy a thrombotic softening of the cord was found, which was attributed to syphilis. Grinker and Guy³ describe a case in which a boy, aged 15 years, yawned vigorously and stretched his arms upward, outward and then backward, whereupon he suddenly felt a sharp, stinging pain in the lower part of the neck, accompanied by an audible crack. Within twenty minutes all four extremities became paralyzed. At autopsy the entire anterior half of the cord in the lower cervical region was found to be a mass of softening due to thrombosis of the anterior spinal artery. The explanation advanced by the authors is that the fifth cervical vertebra was temporarily luxated, probably compressing the anterior spinal artery, to produce a thrombus from stasis following injury to the vessel wall. We have studied the spinal cord in a case that presented a somewhat similar traumatic history but did not show thrombosis of the spinal arteries:

REPORT OF CASE

History.—A white woman, aged 31, a housewife, had never had any children, apparently because of contraceptive measures. She had always been weak physically. The past medical history was irrelevant except for an anal fistula, which had been operated on twelve years before but which had continued to drain most of the time following the operation. About four months prior to the present illness the patient fell off a porch and fractured her right elbow. This was treated successfully by her physician and then, because of complaints referable to the wrist, a fracture was discovered there also. Some time later the patient complained of considerable pain and limitation of movement in the right shoulder. An x-ray examination of

Read before the Chicago Neurological Society, March 18, 1937.
From the neuropathologic laboratory of the Menninger Clinic, Topeka, Kan.

1. Ornsteen, A. M.: *Thrombosis of the Anterior Spinal Artery*. *Am. J. M. Sc.* 181: 654 (May) 1931.

2. Spiller, W. G., cited by Cadwalader.³

3. Grinker, R. R., and Guy, C. C.: *Sprain of Cervical Spine Causing Thrombosis of Anterior Spinal Artery*. *J. A. M. A.* 88: 1140 (April 9) 1927.

that joint showed no pathologic changes. This complaint, however, persisted and was conspicuous at the time of her immediate illness. There was also slight evidence of atrophy of the small muscles of the right hand which had not been present before the fracture. The patient complained occasionally of slight pain in the interscapular region.

The afternoon of April 19, 1935, while in the yard of her home, the patient pulled herself up by her arms on to the limb of a cherry tree. The day before she had had a very slight "head cold" and some aching in the dorsal spine. While hanging from the limb of the tree she suddenly experienced the onset of numbness and tingling in the right leg. For this reason she let go of the limb and went into the house to bathe immediately, hoping to relieve the peculiar sensation in her leg. After the bath, however, numbness appeared in the left leg also and rapidly spread up the body to the chest. A physician was called at once. On examination, he found some disturbance of sensation but no motor dysfunction. Soon after he left, however, the patient began to suffer bilateral motor paralysis, beginning at the feet and ascending to the chest, until she was unable to move at all. The physician was called again and advised immediate admittance to the Stormont Hospital in Topeka. On admission she had to be catheterized, as she had not voided since the beginning of her illness. The following day one of us (L. S.) was called to see the patient in consultation.

Examination.—The patient was pale and undernourished. Respiration was entirely diaphragmatic, with occasional sighing or gasping respiratory movements. Her arms lay flexed across her chest in a characteristic "cervical cord" position. Both legs



Fig. 1.—Transverse section of most extensively involved area of myelomalacia (hematoxylin-eosin stain).

lay in complete flaccid paraplegia. The sensory level was at the eighth cervical-first dorsal segment on both sides with complete loss of sensation below this level for pain, touch, temperature, vibration and sense of position. The patient could extend her wrists slightly and flex her elbows somewhat. Flexion at the wrists and extension of the arms at the elbow were lost entirely. All movements of the fingers were lost. The reflexes in the upper extremities were hyperactive. When the triceps tendons on both sides were tapped there was a distinct paradoxical flexion of the arm. The abdominal reflexes were not obtained. The knee and ankle jerks in the right leg were slightly depressed. They were deeply depressed in the left leg. On plantar stimulation bilaterally there was an abortive tendency to normal plantar flexion. At times no response was obtained. There was a slight tendency to "equinovarus" position of the left foot. Examination of the cranial nerves gave entirely normal results. There was no gross evidence of Horner's syndrome; cocaine was not instilled. There was slight atrophy of the musculature of the right upper extremity, especially in the small muscles of the hand, and the patient complained of pain on attempted abduction of the right arm. The temperature was 100 F. by rectum; the pulse rate was 88.

Laboratory Studies: The urine was straw colored, and acid, with a specific gravity of 1.005; it was negative for albumin and sugar. Pus was present, from five to ten cells per high power field.

The Wassermann reaction of the blood was negative. Hemoglobin was 79 per cent, red blood cells numbered 3,810,000, and the white blood cells 5,500, of which 80 per cent were polymorphonuclears.

On lumbar puncture the initial pressure was 112 mm. of water; the Queckenstedt test was negative. Cell count revealed

2 lymphocytes. The Pandy test was negative. Total protein was 23 mg. per hundred cubic centimeters and sugar 80 mg. The Wassermann reaction was negative and the colloidal gold test showed all zeros.

X-ray examination of the cervical and dorsal spine showed no evidence of fracture, dislocation, caries or narrowing of the intervertebral spaces.

Course.—The patient was bedridden. During the acute phase her temperature rose to 100.2 or 100.4 F. by rectum each day.



Fig. 2.—Transverse section of lower cervical region of the cord (hematoxylin-eosin stain).

After a few days it did not rise higher than 100 during the period in which she was under observation. Retention of urine persisted and bowel incontinence developed. The sensory level descended gradually to the third dorsal segment. Slight spasticity appeared in the lower extremities. After a few days slight flexion movements of the wrist, extension movements of the elbows and slight flexion movements of the fingers began to appear. Atrophy of the interossei and of other small muscles of the hands developed gradually and symmetrically, however, despite the slight improvement in muscular power. Some respiratory movements of the chest became possible with considerable voluntary effort.

The patient was subjected to lumbar puncture five times following the first puncture, which has already been reported. On puncture two days after the first trial only a few cubic centimeters of clear fluid appeared very slowly. Trauma was not evident in this puncture, but numerous red blood cells were found on microscopic examination. On the day following this a homogeneous bloody fluid was obtained. Two days later, or five days after the initial lumbar puncture, despite the employment of a medium sized needle, manometric pressure was so low that no reading could be obtained. The fluid, however, was clear. On simultaneous bilateral compression of the jugular veins, some rise in the column of fluid occurred but was not sufficient to permit a reading. Three days later the initial pressure was 70. On several attempts no rise in the column of fluid could be obtained with jugular pressure. On one occasion



Fig. 3.—Transverse section of upper thoracic region of the cord (hematoxylin-eosin stain).

it rose slowly to 175 mm. (of water) and then fell promptly on release. Three months later (after the patient had been discharged to her home) the fluid was clear. The initial pressure was 50 mm. (of water). On firm jugular pressure the reading was 235; on light bilateral jugular pressure it was 150; on abdominal pressure the reading was 100. The rise and fall to normal in each instance occurred well within ten seconds. The cell count was 5, the Pandy reaction was negative, and the total protein was 37. The patient was seen by us on a few occasions at her home. Progressively severe sacral decubitus developed and she died ten months after the onset of her acute illness.

Clinical Diagnosis.—From the clinical picture and the course presented by the patient while under our observation two possible diagnoses were given principal consideration: (1) acute ascending myelitis of virus type (?), possibly associated with (inflammatory) hemorrhage; (2) hematomyelia, principally of the cervical enlargement and precipitated by trauma (strain). With this possibility was considered the fact that the bleeding might have occurred in a previously present defect; for instance, a small syrinx. In favor of this concept were the following facts: (1) the anamnestic suggestion that the fractures may have had a neurogenic dystrophic basis, (2) the unexplained arthropathy of the shoulder, and (3) the presence of atrophies, antecedent to the final illness, without other characteristic symptoms (sensory changes, for instance) of a peripheral nerve lesion. It is also noteworthy that the atrophy occurring on the opposite side, following the acute illness, soon became quite symmetrical with the original atrophy.

While continued compression of the cord by any of the elements of the vertebral column could be ruled out by x-ray studies, the possibility of a transitory crush of the cord could

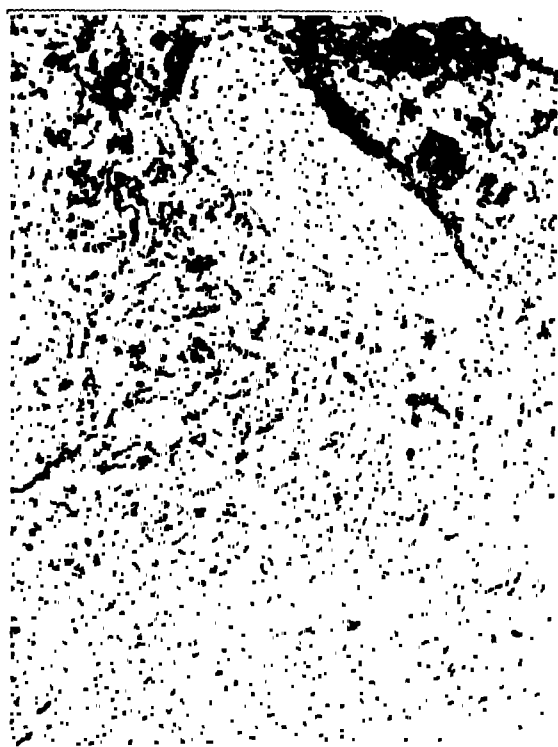


Fig. 4—Islands of gitter cells surrounded by dense glia fibers (van Gieson stain, $\times 80$).

never be entirely excluded. On this basis the possibility of ischemic softening of the cord was considered in this case.

Autopsy.—The examination was limited to the spinal cord. There were no gross pathologic changes in the vertebral column, and the spinal canal was not narrowed at any point. The dura mater was not adherent to the cord at any point. The cervical enlargement of the cord, from about the sixth cervical to the second dorsal segment, was shrunken and felt soft, as though a large portion of the interior of the cord were hollow. A cut surface through the softened area showed a small anterior intact zone, about one fifth of the diameter of the cord, while the posterior four fifths consisted of a cavity in which were contained fragments of soft structureless matter. The area of softening was pale and did not show any evidence either of recent or of old hemorrhage. The left half of the cord appeared more extensively involved in the softening than the right.

Microscopic Examination: Hematoxylin eosin stain of the most extensively softened area at about the eighth cervical vertebra (fig. 1) demonstrated thickened meninges, of which it was impossible to distinguish the pia from the arachnoid. All that remained of the cord substance was a narrow peripheral zone of white matter in the lateral and ventral aspects. The

interior of the cord appeared as a cavity containing numerous isolated fragments of nerve fibers, normal blood vessels and gitter cells. The cavity was bounded anteriorly and laterally by gitter cells and an increased number of small vessels and dorsally by the meninges and some gitter cells. There was no evidence of thrombosis in any of the vessels, none of which contained blood corpuscles. There was a fairly clear demarcation between the intact tissue and the softening, consisting of slightly denser glia tissue, as though some attempt had been made at repair. In the periphery of the destroyed tissue there was an occasional small perivascular collection of lymphocytes, which were reactive to the severe destructive process.

In the section stained by the Spielmeyer iron-hematoxylin method for myelin sheaths, only fragments of myelin could be seen in the ventromedial periphery of the cord. Otherwise there was a complete absence of myelin sheaths. The posterior roots showed some demyelination; the anterior roots were more severely demyelinated. The gitter cells in the scarlet red stain were laden with fat.

In the upper part of the softened area, approximately at the sixth cervical segment (fig. 2), the meninges were thickened, particularly over the posterior aspect of the cord, which was somewhat collapsed. Here the meninges rested directly over the periphery of the cord, thus obliterating the subarachnoid space and gave an appearance as though the meninges had compressed that part of the cord. A few vessels in or near the posterior root showed intimal proliferation; other vessels possessed a proliferated adventitia. At this level the area of softening was less extensive than at the level shown in figure 1 and occupied the entire dorsal half of the cord in addition to a large portion of one anterior column in which the entire gray matter was destroyed. In the intact anterior horn the ganglion cells showed only moderate degeneration in the form of chromatolysis.

In the Spielmeyer stained section there were myelin fragments and some normal sheaths present in the relatively intact areas and especially in the anterior white matter. The posterior roots showed some demyelination, while the anterior roots were fairly well preserved.

In the Bielschowsky silver nitrate stain, nerve fibers, some of which were thickened and fragmented, could be seen in the areas that showed myelin in the Spielmeyer sections. Otherwise there was complete absence of axis cylinders.

The destruction of cord substance in the lower part of the softening, at about the second or third dorsal segment (fig. 3), was less extensive than at the already described levels. In the former the meninges over the dorsal part of the cord were thickened and merged with the destroyed cord tissue, thus obliterating the subarachnoid space. The softening was limited to the dorsal half of the cord, in which there were small cavities that were lined by gitter cells and glia fibers. In certain areas the gitter cells formed islands that were surrounded by dense glia fibers (fig. 4). An occasional vessel in the dorsal root showed moderate proliferation of the intima and adventitia. The anterior spinal artery was collapsed, and not a single vessel contained blood. The anterior half of the cord demonstrated severe degeneration of the anterior horn ganglion cells and degeneration of the descending tracts.

Above and below the limits of softening there was secondary degeneration of the ascending and descending tracts (fig. 5). The areas of secondary degeneration showed a moderate increase of astrocytes (Cajal gold chloride stain), which were progressive in type. In the Holzer stain for glia fibers the glia fibrosis appeared only moderate in degree.

It should be emphasized that the intimal and adventitial proliferation mentioned were both rare and slight. Neither encroached materially on the lumen of any vessel. The change was definitely of secondary or reactive type, a sequel of the myelomalacia. It should also be noted that the vessels in the regions of the cord which were not softened contained blood in contrast to those in the softened segments.

COMMENT

This case is of special interest because of (1) its definite relationship with mechanical strain and (2) the unclear and stimulating problem of its precise patho-

genesis. The strain suffered in this instance was of course not one that would ordinarily cause serious consequences, and this in itself raises the question of antecedent vascular or neural defect or concomitant infection. The postmortem conditions do not provide a basis for consideration of a specific antecedent defect, although certain clinical features (previously mentioned) suggested this strongly. We knew only that the patient was frail and anemic and that she had a chronic anal fistula.

No evidence of syphilis could be demonstrated, nor was there definite evidence of other vascular disease. There was furthermore no evidence of venous or arterial thrombosis. Venous thrombosis in myelomalacia has been emphasized by Mon-Fah Chung.⁴ Arterial thrombosis, especially of the anterior spinal system, has been either demonstrated or assumed to be the cause in most cases of myelomalacia.⁵ It is noteworthy that the second case of Basso and Hassin⁶ presented massive extensive softening of the cord without evidence of thrombosis. These authors mention the possibility of virus infection as an etiologic agent. One cannot conclusively exclude such a possibility in our case, in view of the clinical course, although the late anatomic changes offer no evidence of infection. It should be stated that the myelomalacia was (objectively) of characteristic ischemic type. We cannot of course exclude with finality the possibility of ischemia due to syphilitic involvement confined to the origins of blood vessels at the aorta, as mentioned by Winkelman.⁷ Toxemia of syphilis⁸ we consider an untenable concept in cases in which there is no definite clinical or postmortem evidence of syphilis.

Several authors emphasize the greater delicacy of the posterior spinal vessels as compared with the anterior spinal vessels. Zeitlin and Lichtenstein,⁹ however, point out their relatively lower vulnerability on the basis of rich anastomoses. It should be pointed out that the clinical syndrome presented by this patient was not that of the anterior spinal artery alone but rather a "transverse" syndrome, and that anatomically the destruction of the posterior half of the cord is more nearly complete than that of the anterior half.

The blood supply of the spinal cord has been described and reviewed by several authors,⁹ so that we may confine ourselves to the immediate applications of the anatomic facts. While there is still no agreement as to the precise details, it is generally accepted that, although the anterior spinal artery and the dorsal spinal arteries, both derived from the vertebral arteries, furnish the principal blood supply of the upper cervical cord, a change occurs at about the fifth cervical segment, so that the continuation of the anterior median artery and perhaps the dorsal spinal arteries becomes critically dependent on the reinforcement by the lateral spinal arteries (anterior and dorsal root branches).

These enter through the intervertebral foramina and are described as being derived from branches of the subclavian down to the second dorsal root¹⁰ and below that from segmental branches of the aorta.

It is noteworthy that in addition to the hazard of entry of the lateral spinal arteries by way of the intervertebral foramina, in an especially mobile portion of the spine,¹¹ the trunks from which these are derived pursue devious courses in the neck,¹² in which excessive compression and angulation might occur. The posture which our patient assumed was such that the whole subclavian system might be thrown out of normal alignment. We think therefore that, in a generally delicate and possibly definitely vulnerable individual (this factor uncertain), acute ischemia may have occurred on the basis of compression, angulation or even laceration of the lateral spinal arteries or their parent trunks.

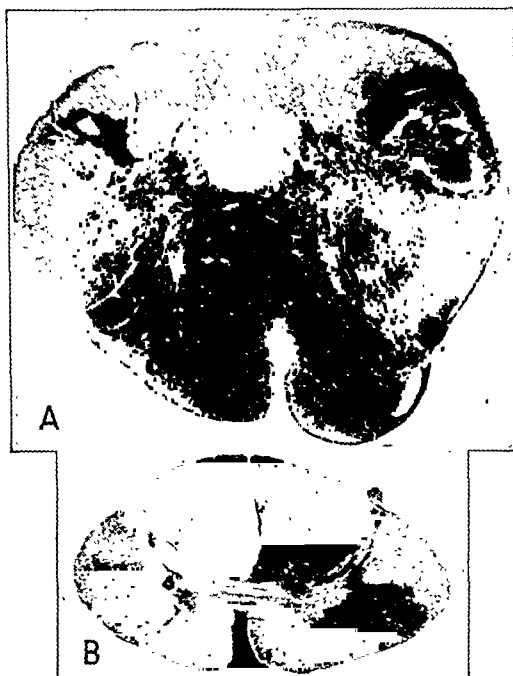


Fig. 5.—Transverse section (A) of lower medulla showing demyelination of ascending tracts, and (B) of lower thoracic region showing demyelination of descending tracts (Spielmeier stain).

SUMMARY AND CONCLUSIONS

In a case of myelomalacia without spinal artery thrombosis and without definite spinal artery disease, symptoms began while the patient was hanging by her arms from the limb of a tree. The myelomalacia may have been precipitated by ischemia due to injury to the cervical lateral spinal arteries or their arteries of origin.

Reports of myelomalacia following slight or indirect trauma such as strain are not common. We suggest that such cases receive especially intensive clinical and anatomic study, that complete autopsies be performed when possible, and that the vascular supply of the regions affected be dissected out up to the origins of the segmental arteries. This alone would settle conclusively some of the problems involved in this subject.

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5. Cadwalader, W. B.: Observations on Character of the Onset of Spinal Paralysis with Reference to the Significance of the Apoplectiform Type of Onset in Contrast to the Slow Progressive Development of Paralysis. *Arch. Neurol. & Psychiat.* 6: 541 (Nov.) 1921. Zeitlin, Howard, and Lichtenstein, B. W.: Occlusion of the Anterior Spinal Artery. *ibid.* 36: 96 (July) 1936. Keschner, Moses, and Davison, Charles: Myelitic and Myelopathic Lesions: III. Arteriosclerotic and Arteritic Myelopathy. *ibid.* 29: 702 (April) 1933. Ornstein,¹ Spiller,² Grinker and Guy.³ Chung.⁴

6. Basso, Peter, and Hassin, G. B.: Myelitis and Myelomalacia. *Arch. Neurol. & Psychiat.* 6: 32 (July) 1921.

7. Winkelman, N. W.: Syphilis of the Spinal Cord. *Am. J. Syph.* 20: 62 (Jan.) 1936.

8. Oppenheim and Nonne, cited by Winkelman.⁷

9. Tauber, E. S., and Langworthy, O. R.: Study of Syringomyelia and Formation of Cavities in Spinal Cord. *J. Nerv. & Ment. Dis.* 51: 245 (March) 1935. Ornstein,¹ Grinker and Guy,³ Zeitlin and Lichtenstein,⁹ Winkelman,⁷ Grinker,¹⁰ Robinson.¹²

10. Grinker, R. R.: *Neurology*, Baltimore, Charles C. Thomas, 1934.

11. Pusitz, M. E.: Personal communication to the authors.

12. Robinson, Arthur, in *Cunningham's Text-Book of Anatomy*, Baltimore, William Wood & Company, 1929.

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SQUAMOUS EPITHELIAL BONE CYSTS
OF THE TERMINAL PHALANX

AND BENIGN SUBUNGUAL SQUAMOUS EPITHELIAL
TUMOR OF THE FINGER

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AND
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Squamous epithelial cysts in the subcutaneous tissues of the hands have been repeatedly described in the literature.¹ It is generally stated that such cysts are of traumatic origin and are due to proliferation of a small fragment of cutaneous epithelium that is carried into the deeper tissues. Wörz,² however, reviewed a series of fifty-five cases and was able to find in only twenty-four of them an adequate history of trauma.

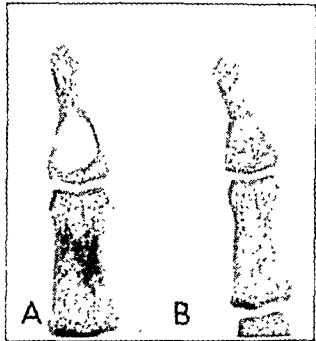


Fig. 1 (case 1).—A, unilocular squamous epithelial cyst in proximal half of distal phalanx. B, appearance taken eight months after operation, showing healed lesion.

That such epithelial cysts not only occur in the soft tissues but may also extensively involve the phalanges is shown by reports in the literature, summarized in the accompanying table.

To this series may be added the following two cases:
CASE 1.³—A girl, whose age is not given, caught her finger in a door in 1917; seven years later, in 1924, the finger presented a swelling of the terminal phalanx. A roentgenogram (fig. 1 A)

From the Department of Surgery and the Division of Roentgenology of the Department of Medicine, the University of Chicago.
1. Behrens, Adolf: Ueber traumatische Epithelcysten, Virchows Arch. f. path. Anat. 250: 145-151, 1931.
2. Wörz: Ueber traumatische Epithelcysten, Beitr. f. klin. Chir. 18: 753, 1897.
3. Patient of Dr. James T. Case, Chicago.

revealed a rounded, well circumscribed, expanding cystic lesion in the proximal half of the terminal phalanx. At operation this was exposed and curetted. Histologic study of the cyst revealed a squamous epithelial lining surrounding laminated keratin. There were no hair follicles or sebaceous glands. Roentgenograms taken several months after operation showed filling in of the lesion by cancellous bone (fig. 1 B).

CASE 2.—A man, aged 41, admitted to the University of Chicago Clinics in May 1936, had had the nail of the left index finger torn off by a revolving fan blade ten years previously. The nail reformed and there were no symptoms until 1935, when a gradual swelling of the terminal portion of the finger developed with slight tenderness on pressure. There was no impairment of function. Roentgen examination (fig. 2) revealed an expanding cystic lesion replacing all but the base of the terminal phalanx. Operation was performed May 21, the palmar aspect of the distal phalanx being exposed through an "alligator bill"

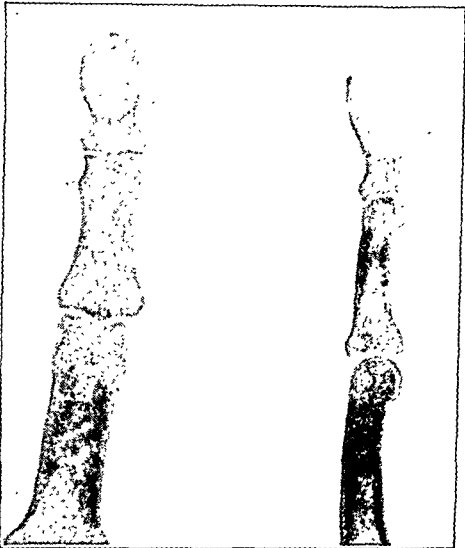


Fig. 2 (case 2).—Anteroposterior and lateral views of index finger showing squamous epithelial cyst involving distal phalanx.

incision. A whitish cystic mass about 1.5 cm. in its longest diameter was found. This was peeled away from the thin dorsal shell and base of the phalanx; closure of the wound occurred after hemostasis, without drainage.

Reports of Bone Cysts of the Terminal Phalanx in the Literature

Author	Age	Sex	History and Symptoms	Roentgenograms	Treatment	Histopathology
Harris, R. I.: J. Bone & Joint Surg. 12: 647, 1930	Adult	♂	Golfer: sudden sharp pain in thumb followed by tenderness on pressure for four years; swelling of distal phalanx progressive with increased tenderness during fifth year; no definite trauma at any time	Destructive, cystic lesion of distal half of terminal phalanx	Excision of a cyst	Fibrous cyst wall lined by squamous epithelium; cyst filled with keratin
Behrens, ¹ 1931.....	29	♂	Hand grenade wound in right 5th digit in 1918; complete healing; 1923 same digit struck by hammer with splintering of nail; pain and sensation of heat for 6 years; also swelling of distal phalanx	None reported	Amputation of distal phalanx of 5th digit in 1929	Squamous epithelial cyst within phalanx just beneath nail bed, producing a circumscribed area of bone destruction
Behrens, ¹ 1931.....	13	♂	Gradual swelling of distal phalanx of left index finger during one year; questionable onset from slight contusion to this finger; no pain	Expanding cystic lesion involving whole of distal phalanx except for small margin at the base	Curettage?	Cyst filled with sebaceous-like material and lined in part by squamous epithelium; where this was missing there was a layer of infiltrated fibrous tissue also containing foreign body giant cells (rupture in situ of cyst?)
Curtis, F. E., and Owen, C. I.: J. Bone & Joint Surg. 15: 998, 1933	29	♂	Swelling of distal phalanx left third finger 1921 accompanied by sense of heat, throbbing pain and tenderness; partial excision of a cyst in 1924 with little relief; continued swelling until 1929	Two confluent cystic lesions destroying all but the base of the distal phalanx	Excision of cysts in 1929	Cyst walls composed of fibrous tissue lined by squamous epithelium; the cysts containing sebaceous material

When the cyst was opened a viscous, whitish, syrupy fluid escaped, leaving denser flakes of sebaceous-like material adherent to the inner walls. Microscopic study of the wall showed it to be lined with a thin layer of stratified squamous epithelium. There were no hair follicles or sebaceous glands (fig. 3).

COMMENT

In four of the six cases there was a history of trauma to the distal portion of the finger in which the cysts subsequently developed. The fact that sebaceous glands and hair follicles were not observed in the lining in any case is evidence favoring the view that traumatic deep implantation of a fragment of cutaneous epithelium is a more probable etiologic factor than displaced embryonic rests, or that these tumors are dermoids.

That masses of epithelium implanted in the soft tissues adjacent to bone may also invade the bone is shown by case 3:

CASE 3.—A man, aged 59, was observed in the University of Chicago Clinics in whom several months following a contusion to the distal portion of the left thumb a firm subcutaneous nodule developed, extending forward from the free margin of the thumb nail.

Roentgen examination (fig. 4) showed a concave erosion of the lateral phalangeal margin. At operation a small round mass partially embedded in bone was removed, together with a thin layer of the adjacent bone. Histologic examination (fig. 5) showed the mass to be composed of squamous epithelium, the central portion of which was beginning to undergo marked keratinization, with suggestion of beginning cyst formation.

This case is cited also because it may illustrate an early stage in the development of traumatic squamous epithelial cysts of bone.

Nonmalignant stratified squamous epithelium may invade bone under other circumstances: 1. The squamous epithelial lining of dentigerous cysts is the result of downgrowth of gingival mucosa along the sinuses, sometimes present between the gingival surface and the cyst cavity.⁴ 2. Chronic osteomyelitic cavities in the long bones may become partially or completely lined by downgrowth of the cutaneous epithelium along the draining sinuses.⁵ In tuberculosis of the calvarium, small cavities within the diploe may present an epithelial lining, also the result of downgrowth of the cutaneous epithelium of the scalp along open sinuses.⁶

From a review of the foregoing cases the following clinicopathologic entity may be described:

Traumatism to the distal portions of the fingers may be followed shortly or after a prolonged period by progressive, slightly or markedly tender diffuse swelling of the distal phalanx without other evidence of infection. Also, such symptoms may develop in the absence of a history of trauma. Roentgenograms reveal a central expanding cystic lesion of the terminal phalanx that has destroyed a portion or almost all of the bone. The clinical diagnosis might usually be chondroma of the phalanx, since experience has shown that these roentgenographic changes are in most instances due to such neoplasms. At operation a cyst is found that is easily peeled away from the surrounding bone. This cyst contains sebaceous material and is lined by squamous epithelium. The lesions are benign, but it is conceivable that recurrences may develop if removal is incomplete. Preoperative clinical and roentgenographic differentiation of these lesions from other processes such as solitary bone cyst, giant cell tumor or chondroma, all of which may produce a unilocular cystic lesion in the bone, is not possible.

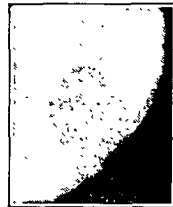


Fig. 4 (case 3).—Terminal phalanx of thumb showing concave erosion of bone produced by a small mass of squamous epithelial cells.

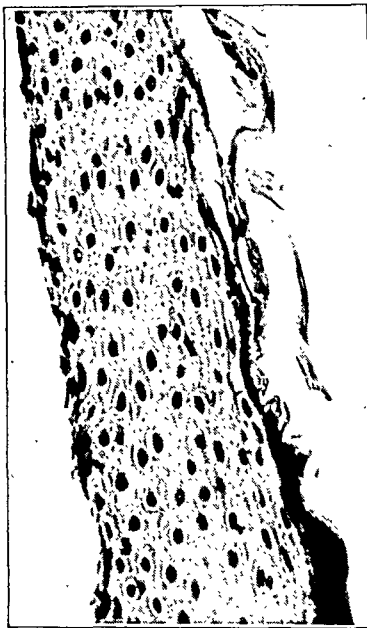


Fig. 3 (case 2).—Squamous epithelial lining of cyst in distal phalanx of index finger. Slightly reduced from a photomicrograph with a magnification of 340 diameters.



Fig. 5 (case 3).—Mass of squamous epithelial cells that produced the erosion of bone shown in figure 4. There is evidence of beginning cyst formation in the central portion of the mass. Slightly reduced from a photomicrograph with a magnification of 23 diameters.

CONCLUSIONS

Benign squamous epithelial cysts of bone, probably of traumatic origin but possibly the result of faulty development, occur in the terminal phalanges of the fingers. Their roentgenographic appearance is similar to that usually produced by chondromas. The treatment is surgical excision. This is followed by regrowth of cancellous bone to fill the defect.

4. Grawitz, P., quoted by Morehead, F. B., and Dewey, K. W.: Pathology of the Mouth, Philadelphia, W. B. Saunders Company, 1925, p. 439.

5. Brunschwig, Alexander: Epithelization of Chronic Osteomyelitic Cavities, Surg., Gynec. & Obst. 52: 759 (March) 1931.

6. Erdheim, J.: Ueber Tuberculose des Schädels, Virchows Arch. f. path. Anat. 282: 354, 1932.

As far as we have been able to determine, only four cases have been previously cited in the literature. Two additional cases are here recorded.

In addition, a case of subungual benign squamous cell "tumor" of the finger is reported in which the phalanx was secondarily eroded.

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Clinical Notes, Suggestions and New Instruments

ECHINOCOCCUS CYST OF KIDNEY

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Hydatid disease of the kidney is rare in this country. Approximately thirty cases have been reported from the United States.¹ The rarity of this condition, the difficulty of diagnosis and the grave postoperative complications make this report of general interest.

REPORT OF CASE

History.—B. P., a white man, aged 31, born in Russia and raised in Buenos Aires, Argentina, has been living in New York State for the last thirteen years. Neither his parents nor he himself was ever engaged in farming or cattle raising activities. He has had no venereal disease and no serious ailments. His present complaint dates back seven years, when he began to experience pain in the right kidney region, with spells of vomiting, nausea and occasional hematuria. These attacks recurred at intervals of every few months to a year, followed by discharge of "bubbles" and shreds in the urine. He consulted me in October 1933, at which time physical examination,



Fig. 1.—Retrograde pyelogram of the right kidney.

urinalysis, roentgenography and cystoscopy failed to show any definite pathologic changes. Following cystoscopy he felt fairly comfortable until September 1935, when an extremely severe attack brought him back to the office with a specimen of urine filled with long curly shreds and bands of tissue, giving the impression of exfoliated pieces of mucous membrane. A freshly voided specimen of urine was clear and, except for a trace of albumin and a few red and white blood cells, contained no

pathologic elements. Microscopic examination of the shreds previously mentioned was inconclusive. He was admitted to Beth Israel Hospital October 30.

Examination.—On physical examination he was well nourished and of an athletic physique, and presented no noticeable abnormalities. Neither kidney could be palpated, nor could pain be elicited on percussion. Repeated urinalysis failed to add any new information. The blood count revealed 4,780,000 erythrocytes, 12,000 leukocytes, 72 per cent polymorphonuclears, 28 per cent mononuclears and 1 per cent eosinophils; the hemoglobin index was 92 per cent. The Wassermann reaction of the blood was negative. On cystoscopy the bladder was found normal, and both ureters were readily catheterized. Intravenous indigo carmine returned in six minutes in good concentration from each kidney. The right renal specimen contained many pus cells, single and clumped. Pyelography (fig. 1) revealed a dilated, bifid right renal pelvis, and dilatation of the middle portion of the right ureter; the upper calices appeared irregularly diffused and shaggy and had a moth-eaten appearance suggestive of solitary cyst of the upper pole of the kidney.

In view of the uncertain diagnosis and long history of the case, operation seemed indicated, and November 2, under general anesthesia, the kidney was exposed through the extraperitoneal route. The lower pole of the kidney was easily delivered, but the upper pole merged with a dense mass with no definite line of cleavage. During manipulation the mass was torn into, and the operative field was flooded with a gush of fluid and innumerable larger and smaller cysts, characteristic of hydatid disease. After thorough suction and removal of cysts, the kidney and as much of the sac as could be secured without injury to the adjacent structures were removed, ample provision being made for drainage.

Course.—The postoperative course was extremely stormy. Within eighteen hours after operation the temperature rose to 105 F., the pulse to from 150 to 170, and the respiration rate to 36. The second postoperative day brought symptoms of deep shock with onset of extreme restlessness and labored respiration, which at times went down as low as 7 per minute. The patient remained stuporous for the next five days. The skin was covered with an eruption of the erythema multiforme type, with ulcerative lesions on the mucous membranes of the nose, mouth and pharynx. He had difficulty in swallowing for some time after regaining consciousness. Two weeks later two large abscesses developed, one on an upper and one on a lower extremity, which had to be incised and drained. The suture line broke down on the tenth day and several large cysts were drained from the lumbar wound, the largest one measuring 7 by 5 cm.; the last cyst, macerated and without the presence of scolices, was discharged about four weeks following operation. December 1 the wound was resutured, and on Jan. 2, 1936, the patient left the hospital with a small sinus draining serous fluid, which closed within three weeks. The serum precipitation test with echinococcus fluid (Ghedini) and the intradermal test (Casoni) repeated before the patient's discharge from the hospital were strongly positive.

Pathologic Examination.—The right kidney was rather large, with many adhesions attached to the capsule. The capsule, which was thickened, was pulled off with difficulty. The kidney appeared incomplete, its upper fifth being supplanted by a torn cyst. Only about one fourth of the cyst wall was preserved. The cyst wall had an average thickness of 2 mm. Its inner surface had many irregular folds and groves. Its inside was mostly yellowish. The bed of the cyst in the kidney tissue appeared smooth and clean. The kidney measured 10 by 6 by 3 cm. The surface was smooth. The much distended kidney surface formed a thin-walled sac, which continued into the much distended calices. Its inside was deeply hyperemic and a thin-walled cyst 1 cm. in diameter was loosely attached to its inside. The whole specimen was fixed (fig. 2). There were a number of characteristic cysts, all of which were torn. Their original size could not be guessed. There were a number of thin-walled cysts; two of them measured 2.5 cm. in diameter, one 2 cm., one 1.5 cm., and several were smaller. They appeared mostly glassy, partly opaque and grayish from

1. Hinman, Frank: *The Principles and Practice of Urology*. Philadelphia, W. B. Saunders Company, 1935, p. 628.

the outside. They contained rather thin colorless fluid. There were a few torn pieces of obviously larger and more thick-walled cysts.

Microscopic Examination.—In the sediment from the contents of the smaller cysts, hooks and scolices were found. The sections from the cyst walls gave the characteristic laminated structure. Scolices were found inside the wall. The wall of the large cyst at the upper pole of the kidney consisted of



Fig. 2.—Postoperative specimen of right kidney, cyst wall and cysts.

hyaline, partly inflamed tissue. The adjoining kidney tissue was atrophic and chronically inflamed.

The diagnosis was echinococcus at the upper pole of the kidney.

COMMENT

Hydatid disease represents the larval or cystic stage of *Taenia echinococcus*, which in the mature stage is found in the small intestine of the dog, wolf, cat and other carnivora. In common with cattle, sheep, horses and other herbivora, man shares the function of intermediary host through ingestion of parasitic ova passed on with the feces from an infested primary host (commonly the dog). The larva liberated in the process of digestion is carried through the portal venous system to the liver (the most common location of hydatid cyst), thence less commonly to the lungs and, if not arrested before it reaches the left ventricle, it may be swept through the circulation into any other part of the body, including the cortex of the kidney. Echinococcus of the kidney is found in about 2 per cent of the cases of hydatid disease.

It takes approximately fifteen to twenty years for the development of a full-sized echinococcus cyst, and as long as there is no communication with the pelvis (closed cyst) there are no early symptoms except such as may be caused later through pressure, displacement and destruction of the kidney substance associated with hydronephrosis. In time, especially in the presence of infection, the tissues of the hydronephrotic pelvis adjacent to the sac may yield to pressure, establishing free communication for spontaneous evacuation of the cystic contents (spontaneous cure). More often, as in our case, after spilling some of its contents, the communicating rent may become sealed and the sac refilled with daughter cysts (fractional evacuation). This process may be repeated from time to time, accompanied by renal colic due to passage of the daughter cysts through the ureters and occasionally hematuria.² There are two other eventualities of cyst involution: one caused by the slow leakage and absorption of the echinococcus fluid, with consecutive degeneration and calcification of the cyst (a process similar to autonephrectomy in renal tuberculosis³), or the cyst may rupture extrarenally, spilling its contents into the perirenal space and peritoneal sac (hydatid peritonitis). There is also the danger of metastatic secondary echinococ-

cosis "due to a rupture of a fertile simple cyst into the heart or venous system,"⁴ all of which emphasize the importance of early diagnosis.

DIAGNOSIS

The diagnosis of renal echinococcus, especially in the earlier stages, meets with difficulty. The subjective symptoms complained of are dull pain, backache, a sense of heaviness in the upper quadrant of the abdomen and, in the fractional evacuation type, severe renal colics followed by the appearance of "grape" skins or large laminated shreds in the urine. Cystoscopy and functional tests are commonly of little diagnostic value. Plain roentgenograms of the genito-urinary tract may or may not show the presence of a large mass in the kidney region, but pyelography rarely fails to demonstrate some degree of hydronephrosis, compression or displacement, irregularity or the moth-eaten appearance of one or more calices, and in the colicky type some degree of dilatation of the ureter. Microscopic examination of the laminated membrane, the discovery of scolices in the urine, and the positive Casoni and Ghedini tests are pathognomonic for hydatid disease.

SUMMARY AND CONCLUSIONS

1. In an operative case of renal echinococcus cyst there were obscure preoperative syndromes and a grave postoperative reaction.
2. Early diagnosis is important, to guard against the possibility of grave complications arising from infection and rupture of an unrecognized cyst.
3. Of equal importance is the choice of the proper operative procedure: aspiration of half the contents of the sac, followed by injection of 10 per cent solution of formaldehyde, or absolute alcohol, marsupialization of the sac and similar measures in order to prevent the always grave and occasional fatal anaphylactic shock following absorption of hydatid fluid.
4. While with the development of the public water supply and slaughterhouse sanitation echinococcus infestation has been rare in this country, there is ground to believe that, with the development of the wool growing industry now in progress in the United States and Canada, hydatid disease will be on the increase in both these countries.

115 East Eighty-Second Street.

BILATERAL ORBITAL GRANULOMA

JOHN F. TOWNSEND, M.D., CHARLESTON, S. C.

Tumors of the optic nerve, while not extremely rare, seldom attain the size of the ones reported in this case. These, in addition, are bilateral. The three previously recorded of about the size of those here presented were diagnosed neurofibroma.

David Verner, a Negro, aged 21, admitted to the Roper Hospital Oct. 18, 1934, suffered a burn of the left eye, with no impairment of vision in 1918. The details of this accident were not given, but the patient was quite definite about the year in which it occurred and also about the dates of the stages of the progress that followed.

In 1921 the left eye "began to grow." In 1922 "growth" commenced in the right eye, and both eyes became progressively exophthalmic from that date. Loss of vision occurred in 1924 in the left eye, which was first affected. That was six years after the burn and three years after the commencement of the exophthalmos. Two years later, in 1926, the vision was lost in the right eye also; that was four years after exophthalmos began in that eye.

Up to 1926 the exophthalmos was not great, but an exact description of the size of the eyes at that time could not be obtained. Since that time, during the eight years that elapsed before he presented himself for admission, the enlargement proceeded more rapidly. Both orbits were filled with symmetrical, firm growths about the size of a small grapefruit. The eyelids, though capable of motion, could not close completely, as shown in the illustrations. The lower lids were infiltrated and firm;

2. Young, Hugh: Practice of Urology, Philadelphia, W. B. Saunders Company 1: 361, 1926.

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the veins were distended. The eyeballs were round, hard and white except where the lids did not cover them; there they were reddened. They were movable and not tender. In the pupillary areas were collections of yellowish red material.



Fig. 1.—Lateral view of patient.

The patient's nose was recessed between the bilateral growths. The hard palate was pushed down laterally, forming an inverted V, as the roof of the mouth.

There were no other abnormalities except for palpable enlargement of the cervical and epitrochlear lymph nodes, and

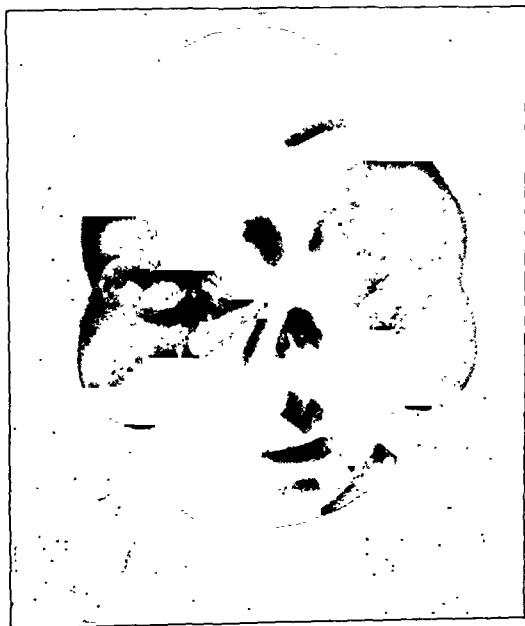


Fig. 2.—Front view of patient.

the following neurologic changes: The olfactory sense was impaired. The legs were spastic with hyperactive reflexes; there was ankle clonus, and the Babinski sign on the left foot was doubtful. The impression of the neurologist was that there was a moderate pressure on the pyramidal tracts and a growth, beginning either in the wall of the cavernous sinus on the left side or outside the sinus involving early cavernous

sinus drainage and making pressure on the optic chiasm or just in front of it on the optic nerves. If new growth was outside the sinus, he would suppose it was growing from the floor of the anterior fossa.

No calcification was revealed roentgenographically in the orbital tumors.

The following laboratory observations are recorded: The blood count and urinalysis were negative. The Wassermann reaction of the blood and spinal fluid was negative.

The treatment instituted was surgical removal of the growth, and the patient died.

The pathologic diagnosis was chronic inflammatory granuloma of the orbits, optic nerves, optic chiasm and lower part of the abdomen with hydronephrosis from the ureteral obstruction by granulomatous masses. The orbital growth was retrobulbar.

BACTERIAL ENDOCARDITIS INVOLVING THE RIGHT CHAMBERS OF THE HEART

ADOLPH SACHS, M.D., AND SVEN ISACSON, M.D., OMAHA

Subacute bacterial endocarditis is a moderately common occurrence in most larger clinics. Libman has presented this syndrome so clearly to the profession that the diagnosis in most cases is readily made. The Libman facies, the clubbing of the fingers, the chills, fever and sweats, the enlarged spleen,



Fig. 1.—Multiple septic infarcts in the lung.

the showers of infarcts, the petechiae, the positive blood culture, the history of an old valvular endocarditis, the moderately prolonged illness and the usual fatal ending are so characteristic



Fig. 2.—Bacterial endocarditis involving tricuspid valve.

that the profession is constantly alert to recognize its occurrence; but subacute or acute bacterial endocarditis involving only the right chambers of the heart is not common, and the profession at large should be awakened to this syndrome so that more cases will be recognized.

The right sided subacute bacterial endocarditis usually is found in old congenital heart lesions, but it may also occur without a recognizable congenital lesion. The symptoms of

right sided subacute bacterial endocarditis are the following: 1. Chills, fever, sweats, leukocytosis and the like are the same as in any septicemia. 2. Signs of atypical pulmonary infection are present with patchy areas of consolidation. These may be confirmed by x-ray examination. The consolidations are due to pulmonary infarctions. 3. The spleen may or may not be enlarged; if it is it is due to sepsis, not infarction. 4. A positive blood culture occurs late if present at all. 5. The history or physical signs of a congenital lesion are of value but may be absent. 6. Signs of a right sided heart lesion may or may not be present. 7. There is no clubbing of the fingers unless it is due to an old congenital lesion. 8. The diagnosis is often made by exclusion. 9. Peripheral emboli, except in the lungs, are absent.

The lesion should be suspected if the (1) chills, fever, sweats and leukocytosis are present; (2) there is protracted pulmonary infection due to multiple septic infarcts, as revealed by physical or x-ray examination; (3) there is a cardiac lesion involving the right chambers of the heart; (4) typhoid, paratyphoid fever, undulant fever, malaria and the like can be excluded.

REPORT OF CASE

We report an illustrative case with the autopsy. This case ran a moderately malignant course. The patient entered the hospital May 30, 1936, and died June 18.

Miss C. M., aged 52, had just recovered from double lobar pneumonia and on admission complained of pain in the right upper quadrant, chills and fever, and sweats.

The past history was practically negative except that radium had been used for menorrhagia six years before, with uneventful recovery. She had had no rheumatism or serious infectious diseases. She had been deaf since childhood.

May 1, 1936, while the patient was teaching at an institute for the deaf, she had a sudden severe pain in the right upper quadrant and fever. After examination it was found that she had a diaphragmatic pleurisy with double lobar pneumonia. She had a stormy illness but made a nice recovery, so that she was able to sit up and walk a little. May 30 she had a severe chill lasting about twenty minutes, nausea, vomiting, and a temperature of 104 F. She was taken to the hospital and complained of pain in the right upper quadrant. She had a hacking cough but no bloody or rusty sputum. On examination, signs of consolidation in the right upper and left lower lobes were present, and a diagnosis of delayed resolution was made. X-ray examination corroborated it. The chills and fever continued at irregular intervals and she remained tender over the right upper quadrant. The liver was so tender that at one time we were suspicious of a liver abscess. All the usual agglutinations for undulant fever, typhoid, paratyphoid fever and the like were negative. Lobular patches of consolidation were increasing, and we felt that this undoubtedly was associated with her chills and fever. No malarial parasites could be found.

We were constantly watching for an endocarditis because of other negative observations plus the large spleen, the chills and fever and sweats. The blood picture merely showed a marked secondary anemia and a leukocytosis. The patient had no petechiae, no clubbing of the fingers, no showers of infarcts and no hematuria. Since no murmurs were present we were loath to diagnose an endocarditis. A blood culture was positive for pneumococci, June 12.

Laboratory studies revealed: white blood cell count varied between 10,000 and 18,000, with 80 to 88 per cent polymorphonuclears and a marked secondary anemia.

Urine analysis was negative.

There was a soft systolic blow, which is often heard during high fevers, but it was not constant. No thrills or pericardial friction rubs were present.

The patient's condition improved somewhat and she had an unusual euphoria.

She felt bad only during the chills and fever, which lasted about twenty-four or forty-eight hours.

By exclusion we felt that the only diagnosis that could be made was that of a bacterial endocarditis of an unusual type. The patient died suddenly June 18 and a postmortem examination was permitted after the body was embalmed.

Autopsy revealed a right sided endocarditis with multiple septic emboli in the lungs. There were no infarcts elsewhere, which is characteristic of this type of right sided endocarditis.

External examination revealed a small, well nourished body. The skin and visible mucous membranes were very white and showed no special markings except for a superficial bruise on the right upper arm. The body had been embalmed and rigor was marked.

The body was opened in the midline. The thoracic organs appeared to be in normal positions. In the abdomen the spleen was prominent and extended four fingerbreadths below the left costal margin. The left lung was free, the lower lobe was consolidated and presented a round necrotic area 3 cm. in diameter on the anterior surface; on cut section there were seen many red infarcted areas varying in size and age. The right lung had many fine pleural adhesions. There was a small infarct in the lower lobe; the rest of the lung contained air throughout. Peribronchial and mediastinal lymph nodes were enlarged and anthracotic.

The heart was approximately normal in size and the posterior coronary vessels were tortuous. The tricuspid valves presented soft friable, firmly adherent thrombi on all three cusps. The largest was found on the posterior leaflet and measured 2 by 2 by 1 cm. The left chambers were empty and the mitral leaflets were clean. The root of the aorta showed small atheromatous areas. The aortic and pulmonic valves were clean.

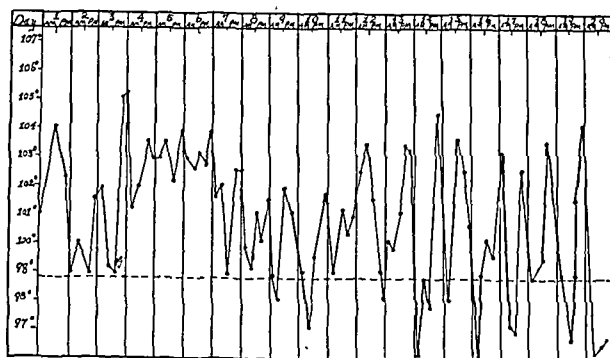


Fig. 3.—Temperature.

In the abdomen the spleen was seen to be greatly enlarged, approximately three times normal size, with rounded edges and a "pink paint" friable pulp, characteristic of a septic spleen. The liver, gallbladder, pancreas and gastro-intestinal tract showed no gross abnormalities and no infarcts.

Both kidneys were large, lobulated and congested. The adrenals were normal in appearance. No infarcts were present except in the lungs.

The pelvic organs were small and the ovaries were sclerotic. In the lower uterine segment was seen a small subserous fibroid and at the fundus was seen a small mucous polyp.

Section of the lung taken through an infarcted area showed a solid mass of fibrin, red and white blood cells and a barely recognizable lung stroma. Surrounding alveoli were filled with an albuminous fluid.

A section of the thrombus on the tricuspid valve showed an amorphous mass of platelets and fibrin in the periphery of which were seen masses of lymphocytes, a moderate number of polymorphonuclears and pneumococci.

The anatomic pathologic diagnosis was: (1) acute ulcerative pneumococci endocarditis, (2) septic pulmonary infarcts, (3) serofibrinous pleurisy and (4) acute septic spleen.

COMMENT

It is apparent that the pneumonia became complicated by an ulcerative tricuspid valvulitis on which large soft vegetations quickly developed and in turn gave rise to septic emboli, with infarctions in the lung. Death resulted from acute cardiac failure.

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Special Article

PHYSICAL AND PHYSIOLOGIC PRINCIPLES OF AIR CONDITIONING

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BOSTON

Air conditioning for comfort or health is the art of controlling the physical environmental factors to suit human requirements. Great strides have been made in the past few years along purely engineering lines, but our knowledge of human requirements is still incomplete and controversial.

In the present paper an attempt is made to digest and evaluate some of the basic physical and physiologic principles involved, and to point out where data are inadequate and where research is urgently needed.

THE NEED FOR AIR CONDITIONING

Alteration of the Atmosphere of Occupied Rooms.—

In rooms occupied by many persons the air is altered physically and chemically by the processes of body metabolism and decomposition of matter in the skin and clothing. Contrary to earlier workers, we are not at all concerned now with the changes of oxygen and carbon dioxide from respiratory processes, because they ordinarily are much too small to be of any physiologic significance. The leakage of air through cracks around windows and doors is usually sufficient to maintain the oxygen and carbon dioxide well within normal limits.

Changes in the electrical characteristics of air, though striking,¹ have not been proved to be significant to the comfort or health of individuals.²

Volatile Organic Matter.—More important than oxygen or carbon dioxide in occupied rooms is the ill defined odoriferous organic matter arising from foul breath, sweat and sebaceous secretions (especially when personal hygiene is deficient), gases from the alimentary canal, and decomposition of matter in the skin and clothing. Man's sense of smell is extremely sensitive to inconceivably small concentrations of odoriferous matter that cannot be detected by known methods of chemical analysis.

Such odors are not known to be harmful but they certainly induce a feeling of stuffiness and odor discomfort on entering a room from outdoors. Under extreme conditions headache, nausea, loss of appetite and a disinclination for physical activity³ may result in sensitive persons. Owing to olfactory adaptation, the occupants of a room may not be conscious of odor but they seem to be capable of detecting stuffiness or lack of freshness

in the air.⁴ The general agreement now is that all rooms should be provided with sufficient fresh air to prevent the accumulation of objectionable body odors.

The toxicity of expired air is constantly coming up in every discussion of the subject. Many persons, including a number of scientists, still hold the view that expired air may contain some poisons in minute concentrations; and, while a positive statement would be entirely unfounded, a negative view would be equally unwarranted. All one can say at present is that no poisonous substance has been demonstrated in expired air. Summaries of authentic contributions to both sides of this argument have been published by Billings, Mitchell and Bergey,⁵ Flügge,⁶ the New York State Commission on Ventilation,³ Frederick⁷ and Rosenau.⁸

Of considerable academic interest in this connection is a recent study by Gramenitzkii⁹ indicating a weakening action of expired air on the isolated frog heart that cannot be accounted for by the action of carbon dioxide. The air of old and sick persons was found to be more toxic than that of young and healthy individuals.

Microbic Dissemination in Rooms.—After a period of dormancy, the problem of air-borne infection has now come again to the forefront. Recent experiments by Colvin¹⁰ indicate that aerial infection beyond mouth spray limits takes place in occupied rooms. W. F. and M. W. Wells¹¹ have definitely shown that, although droplet infection is essentially localized and concentrated, infection by droplet nuclei is dispersed and dilute. Minute droplets, less than 0.1 mm. in diameter, ejected into the air by talking, sneezing and coughing, do not fall to the floor, as has been generally assumed,¹² but evaporate before they fall the height of a man. Pathogenic organisms in the dried droplet nuclei may remain suspended in the air for long periods and the virus may survive long enough to be transmitted to other persons in the same room or building.

By means of improved apparatus, Wells was able to recover droplet nuclei from cultures of resistant microorganisms a week after inoculation into an air-tight metal chamber. Organisms characteristic of the respiratory tract were recovered in small numbers forty-eight hours after inoculation, while organisms of the intestinal tract could not be recovered after eight hours. The Pfeiffer bacillus disappeared within an hour under the conditions of Wells's experiments.

The practical importance of these results in the transmission of disease depends on a number of complex factors, such as the specific character, virulence and number of infectious organisms encountered, the frequency of exposure, susceptibility of the individual, and so on, which need not be discussed here. According to

This is the first report of the committee established by the American Medical Association to study air conditioning. The committee includes: Carey P. McCord, Detroit, chairman; Emery R. Hayhurst, Columbus, Ohio; William F. Petersen, Chicago; Horatio B. Williams, New York, and Constantin P. Yaglou, Boston.

1. Yaglou, C. P.; Benjamin, L. Claribel, and Brandt, Allen: The Influence of Respiration and Transpiration on Ionic Content of Air of Occupied Rooms, *J. Indust. Hyg.* 15: 8 (Jan.) 1933. Wait, G. R., and Torreson, O. W.: Large-Ion and the Small-Ion Content of Air of Occupied Rooms, *Am. Soc. Heating & Ventil. Engrs. Journal Section, Heating, Piping and Air Conditioning* 7: 105 (Feb.) 1935.

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7. Frederick, R.: Ventilation Conditions. Normal and Abnormal, and Their Investigation, *Inst. of Chem. of Gt. Britain & Ireland, London*, 1929 (monograph).

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12. Flügge, Carl: Die Verbreitung der Phthise durch staubförmiges Sputum und beim Husten verspiete Tröpfchen, *Ztschr. f. Hyg. u. Infektionskr.* 20: 107, 1898.

Dudley¹³ a certain minimum number of specific pathogenic organisms in the air is desirable and probably beneficial, as they stimulate immunity by acting as vaccines.

The probability of meeting pathogenic organisms in sufficient numbers to break down the natural body defense is intimately associated with the floor area and air space per person and the quantity of fresh air supplied. The problem is extremely complex, as it is difficult or impossible to separate contact infection from air-borne infection. Except in overcrowded and badly ventilated rooms, the danger is believed to be "much contracted in space, limited in time and restricted to comparatively few diseases."¹⁴ The value of ventilation in infection is stressed by many, particularly de Crespigny,¹⁵ Dudley,¹³ and Frederick.⁷

A recent development of considerable significance to contagious wards and operating rooms is the use of ultraviolet radiation for sterilizing air.¹⁶

Temperature, Humidity and Air Movement.—It is now generally recognized that the most important change in the air of occupied and poorly ventilated rooms is the increase of temperature and humidity caused by the heat and moisture given off from the skin and lungs of the occupants. The most common complaint in crowded rooms is not lack of ventilation but overheating; stuffiness and odors are secondary contributing causes. The depression and discomfort felt is similar to that experienced on a warm and humid summer day and the primary object of air conditioning, therefore, is to reduce the temperature and humidity to within comfortable limits. In cold weather this is done by the introduction of cool outdoor air after tempering it to a suitable temperature, with or without artificial humidification. In warm weather the air must be cooled and dehumidified.

A secondary object of air conditioning is to circulate a sufficient amount of fresh clean air through the room in order to dilute the odoriferous matter below the objectionable concentration. This must be accomplished without drafts. When these conditions are fulfilled, all other factors will be automatically taken care of satisfactorily under the usual conditions of life.

PHYSICAL AND PHYSIOLOGIC BASES OF COMFORT

Heat Regulation in Man.—Although life and heat are concomitant, the heat produced in the body is a by-product of metabolic processes and the amount is far in excess of the usual requirement for keeping the body warm. Nature has provided suitable means in the skin and lungs for the removal of the excess heat and for the maintenance of an optimum internal temperature.

A fundamental requirement of all living organisms is the ability to adapt constantly to the ever changing physical environment, which tends to upset the temperature equilibrium of the body. Under the usual conditions of life these adjustments are so easily accomplished that a normal person is unconscious of the complex physiologic processes at work. Discomfort arises when thermal equilibrium is impossible or when abnormal reactions are involved in the transitional period of adaptation. The ability to adapt varies widely; metabolism, peripheral circulation and physical

and subjective symptoms show great variability in different persons under identical environmental conditions.

Sensations of heat or cold are not due to changes in internal body temperature but largely to changes in the temperature of the skin. Although every physiologist accepts the existence in the brain of a heat regulating center that coordinates the multitude of functions involved in heat regulation, there is considerable controversy as to how this heat center is normally stimulated.

According to the prevailing school of thought, induction of the stimulus is by afferent neurons with endings in the skin that are sensitive to temperature. The actual existence of such receptors has never been demonstrated, although the experiments of Adrian,¹⁷ Bazett,¹⁸ Dallenbach¹⁹ and Strughold and Karbe²⁰ are particularly suggestive.

An alternate view is that only a small change in the blood temperature is sufficient to stimulate the central nervous system. The evidence on both sides is admirably reviewed by Martin²¹ and Ranson²² and it would seem that both theories may be true. That the heat regulating center is itself sensitive to temperature was demonstrated by Barbour,²³ Moorhouse²⁴ and others.

By whatever means the centers may be aroused, efferent neurons transmit the activating impulses from the central nervous system to the various organs of the body controlling heat production and heat loss for the restoration of normal body temperature. The organs involved in heat production include the musculature, the liver and the endocrine glands; those primarily concerned with heat loss are the blood vessels of the skin and lungs and the sweat glands.

Under ordinary conditions, the vasomotor changes are apparently induced by nerve reflexes. The cutaneous blood vessels are also affected through the sympathetic nerves by the action of cold on distant parts of the body's surface. According to Martin,²¹ direct sensitivity of the centers to the temperature of the blood returning from the skin is essential for the control of the reflex mechanism after the latter has accomplished its purpose. Otherwise the reflex action would become progressive and the internal temperature would continue to rise or fall with a fall or rise in the skin temperature.

The workings of the heat regulating mechanism are extremely complex and are not well understood. When the external temperature rises, the blood vessels of the skin dilate by reflex vasomotor action and probably by the direct action of heat on the vessels. More blood flows through the skin, thus raising its temperature and therefore the heat loss. The rise is least in the skin of the forehead and trunk and greatest in the extremities, particularly the feet.²⁵ If this method of

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cooling is not sufficient to prevent a rise of body temperature, the sweat glands are thrown into full action by the stimulus of the heated blood flowing through the center. Finally the activity of the adrenals and the thyroid is depressed by sympathetic inhibition and the metabolism is lowered.²⁶ In this way thermal equilibrium may be reestablished if the external temperature is not too high.

On exposure to cold, a reverse action takes place. The skin vessels constrict and the blood supply is curtailed in order to conserve body heat. If this response fails to prevent the body temperature from falling, there is a definite increase in metabolism, effected partly by voluntary muscular contractions and partly by stimulation of the adrenals and thyroid.²⁷ Such alterations in endocrine secretion are probably the chief factors involved in the adaptation of the organism to warm and cold climates.

Comfort as Related to Physical Air Factors.—Comfortable air conditions are those under which the human body is able to maintain a normal balance between the production and loss of heat at normal body temperature

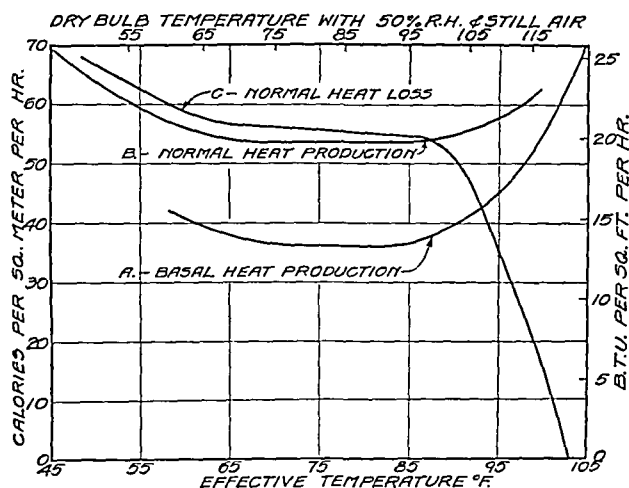


Chart 1.—Heat production and heat loss of healthy young men in relation to "effective temperature." Curve A, courtesy Archives of Internal Medicine.²⁷ Curves B and C, men seated at rest; after Houghten, Teague, Miller and Yant,²⁸ courtesy American Journal of Physiology.

without the individual being conscious of undue effort on the part of the heat regulating mechanism. Heat loss should preferably take place in the manner to which the individual has been adapted by climate, season, clothing and general living conditions. This is not generally recognized, however; the prevailing belief is that the method of heat loss makes little difference to the comfort of an individual as long as the total heat loss is adequate. If this were true, one should be comfortable when the entire heat loss takes place by evaporation of sweat with total metabolism and heat loss remaining normal, as for instance on exposure to a temperature of 100 F. and a relative humidity of 20 per cent (chart 1).

Four principal factors are generally recognized as affecting comfort and quality of the air: temperature, radiation, air movement and humidity. None of these are independent of the others, and the human body

reacts to them as a whole. Wide national and international differences of opinion exist concerning the application of these factors.

No comfort standards can be fixed to apply under all conditions, although it is possible to derive limits that would meet the requirements of a majority in any given homogeneous group under certain conditions. The factors determining the selection are largely individual, owing to wide biologic diversity and variable response of different persons to a given physical environment. Climate and season, social and economic status, state of health, age, sex, clothing, activity and degree of native or acquired adaptation are among the important modifying factors. The variation in temperature may be from 50 to 100 F., with a very wide range of humidity.

Still more difficult to fix are the optimum air conditions for health, since an individual's health is a complex physiologic balance, an "imponderable subjective and objective" that cannot be expressed in terms of physical units. We must therefore content ourselves with evaluating health aspects of air conditions on the basis of physical comfort or discomfort, records of colds, physical and mental efficiency and the like, however variable and relative these criteria may be.

Under ordinary conditions the total metabolism and heat loss remain substantially constant over a rather wide range of temperature and humidity (chart 1), but the degree of comfort experienced may vary considerably within this range, depending on the adjustments the body must make to maintain heat equilibrium. Owing to a number of physical, physiologic and psychologic factors, thermal equilibrium is never entirely fulfilled at any given moment, as shown by fluctuations of body temperature and metabolic rate within certain limits even under basal conditions. Over a period of time, however, the assumption of thermal equilibrium must necessarily hold true.

Heat loss from the human body takes place by radiation to surrounding walls and objects, by conduction and convection to surrounding air, and by evaporation of moisture from the lungs and skin. Under comfortable conditions during the heating season, radiation usually accounts for between 46 and 60 per cent of the total heat loss, convection for from 15 to 30 per cent, and evaporation for from 20 to 30 per cent. The variation in loss through these different channels depends largely on physical and physiologic factors, the former including the temperature of the air and walls and the body surface exposed. The physiologic factors include the state of health, metabolic rate, vasomotor control and other secondary factors. At the usual indoor temperature of 70, the average normal radiation loss is approximately 50 per cent of the total loss, convection loss is 25 per cent, and evaporation loss is 25 per cent.²⁹

Loss of heat by radiation depends on the temperature of the surrounding walls and objects and is independent of air temperature. The rate of loss is according to Stefan's fourth power law as demonstrated by Aldrich,²⁹ Fishenden and Saunders²⁸ and recently by Winslow and his co-workers.³⁰ Air temperature directly affects heat loss by convection from the surfaces of the body and indirectly by evaporation, as will appear later. Air

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30. Winslow, C. E. A.; Herrington, L. P., and Gagge, A. P.: The Determination of Radiation and Convection Exchanges by Partitioned Calorimetry, Am. J. Physiol. 116: 662 (Aug.) 1936.

movement increases convection loss and reduces to some extent the radiation loss by lowering the surface temperature of the body. With powerful air currents, convection loss may become a very important factor, but such conditions are outside the limits of comfort.

About 9 per cent of the total heat loss takes place by evaporation from the lungs and upper respiratory passages, and 16 per cent by evaporation from the skin. To an insignificant extent the former varies with vapor pressure of the water vapor in the air and is therefore a function of absolute humidity to that small extent. Evaporation from the skin is limited to the amount of moisture present on it, and this amount remains substantially unaffected by humidity and, up to a certain point, by temperature also,³¹ as shown in chart 2. Insensible perspiration is now known to be largely diffusion of water through the capillaries and is almost independent of sweat gland activity.³² Sweating is an emergency process that comes into play in warm environments or during muscular work, and the output of sweat is controlled not by humidity but by temperature (chart 2). Von Willebrand,³³ Adolph,³⁴ Houghten,²⁸ Campbell and Angus³¹ and many others have shown that insensible perspiration increases gradually with the environmental temperature up to a certain critical temperature of about 90 F., at which point visible sweating breaks out. The importance of humidity on sensation of warmth and comfort follows the temperature and perspiration curve; it is minimum during the heating season, as Howell,³⁵ Miura,³⁶ Phelps and Voit,³⁷ the New York State Commission on Ventilation³ and the effective temperature index³⁸ indicate, and maximum during warm weather when profuse sweating takes place. Heat loss by radiation and convection follows an opposite course, decreasing with increasing temperature, as shown in chart 2.

The important factors in air conditioning during the heating season are, therefore, the temperature of the air and of the enclosure and the rate of air movement with respect to drafts. In buildings of good construction, heated by the usual convection methods, the temperature of exposed walls is but a few degrees below air temperature, and the air movement is usually between 15 and 50 feet per minute. Consequently, air temperature is the predominant factor. In most localities in the United States, where central heating is used for from six to eight months of the year, a temperature between 69 and 73 F. with natural or moderately low humidity and freedom from drafts will meet the requirements of the majority of persons of sedentary pursuits. Lower temperatures are indicated in manual labor, depending on the degree of exertion.

Humidity.—The human body has no receptors in the skin for recognizing degrees of humidity, but it is

affected indirectly in a physical manner when the temperature is either too low or too high. At temperatures below 45, a high humidity makes the air feel colder because it increases the heat conductivity of clothing. At high temperatures a high humidity makes the air feel even warmer, because it interferes with evaporation of perspiration.

Under ordinary indoor conditions during the heating season, variations of humidity are relatively unimportant as far as warmth and comfort are concerned, and from the standpoint of health there are no data to prove that artificial humidification is necessary. With the exception of Huntington's³⁹ statistical studies and the clinical studies of Blackfan and Yaglou⁴⁰ on premature infants, practically all physical, physiologic and psychologic tests have proved to be negative or inconclusive.⁴¹ No one disputes the injurious effect of low humidities to household furniture, but the argument about health has little foundation in proved fact.

Extremely low humidities of the order of 15 per cent or less may affect our comfort and possibly our health by drying the mucous membrane of the nose, but such

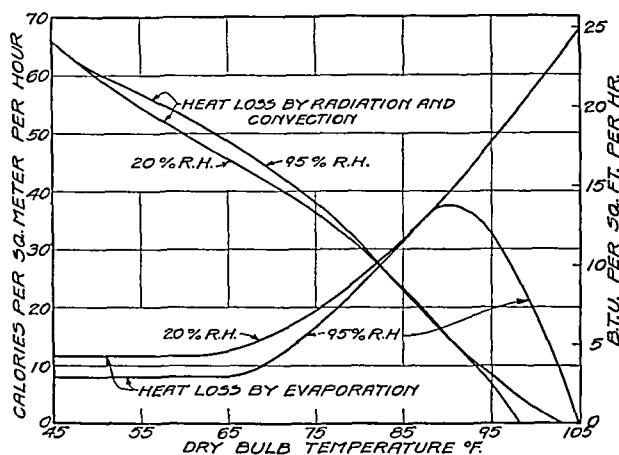


Chart 2.—Normal heat loss by evaporation and by radiation and convection combined, in relation to environmental temperature and humidity. After Houghten, Teague Miller and Yant,²⁸ courtesy American Journal of Physiology.

humidities are unusual unless the air is overheated. During the coldest months of the year the ordinary variation is between 20 and 30 per cent. The walls and furnishings of a room, although apparently dry, are capable of storing large quantities of moisture when the humidity is relatively high⁴² and releasing it when the humidity falls. For this reason the relative humidity never falls to the theoretical minimum of about 5 per cent in zero weather—a value often used as an argument in favor of artificial humidification.

Although normal persons generally prefer a low humidity (25 per cent) to a high one (40-60 per cent) when given an opportunity to compare the two in adjoining conditioned rooms, sufferers from frontal sinusitis and other infections of the upper respiratory tract characterized by excessive dryness of the nose have shown a strong preference for the high humidity.

39. Huntington, E.: *Civilization and Climate*, New Haven, Yale University Press, 1924.

40. Blackfan, K. D., and Yaglou, C. P.: *The Premature Infant: A Study of the Effects of Atmospheric Conditions on Growth and on Development*, Am. J. Dis. Child. **46**:1175 (Nov.) 1933.

41. Stecher, L. I.: *The Effect of Humidity on Nervousness and on General Efficiency*, Arch. Psychol., December 1916. Wolf: *Ueber Zimmerluftfeuchtigkeit*, Arch. f. Hyg. **106**:168 (June) 1931. Ventilation Report of the New York State Commission on Ventilation.³

42. In rainy weather, from cooking, washing, bodies of occupants, and so on.

31. Benedict, F. G., and Root, H. F.: *Insensible Perspiration: Its Relation to Human Physiology and Pathology*, Arch. Int. Med. **38**:1 (July) 1926. Campbell, J. A., and Angus, T. C.: *Physiologic Reactions of Resting Subjects to Cooling Power and Effective Temperature*, J. Indust. Hyg. **10**:331 (Dec.) 1928. Houghten, Teague, Miller and Yant.²⁸

32. Hancock, W., and others: *The Loss of Water and Salts Through the Skin and the Corresponding Physiological Adjustments*, Proc. Roy. Soc. London, Series B, No. 105, 1930, p. 43.

33. von Willebrand, E. A.: *Ueber die Kohlensäure- und Wasserausscheidung durch die Haut des Menschen*, Skand. Arch. f. Physiol. **13**:337, 1902.

34. Adolph, E. F.: *The Nature of the Activities of the Human Sweat Glands*, Am. J. Physiol. **66**:445 (Nov.) 1923.

35. Howell, W. H.: *Humidity and Comfort*, Science **73**:453 (April 24) 1931.

36. Miura, U.: *The Effect of Variations in Relative Humidity upon Skin Temperature and Sense of Comfort*, Am. J. Hyg. **13**:432 (March) 1931.

37. Phelps, E. B., and Voit, Alfhild: *Studies in Ventilation: I. Skin Temperature as Related to Atmospheric Temperature and Humidity*, Am. J. Pub. Health **24**:959 (Sept.) 1934.

38. Yaglou, C. P., and Miller, W. E.: *Effective Temperature with Clothing*, Tr. Am. Soc. Heat. & Ventil. Engrs. **31**:89, 1925.

ties.⁴³ According to them, humid air was fresher and easier to breathe than air of the same temperature but of lower moisture content. The same subjects, however, disliked the humid air after their condition cleared up. In catarrhal conditions of the nose a low humidity also seems to be more agreeable than a high one,⁴⁴ but data on this are too limited at present to serve as a basis for final conclusions.

The tendency to dryness of the nose and throat under low humidities and its possible effect on respiratory disorders should be investigated. Possible disturbances of water balance and symptoms of discomfort under extremes of humidity should also be investigated with the temperature kept at normal.

Air Movement and "Freshness."—Air freshness as perceived by the normal nose is mainly a function of temperature, humidity and amount of odoriferous matter in the air. Moderately dry and cool air is fresh and invigorating, whereas warm air is stuffy and depressing, no matter how pure it is chemically.

Body odors, odors from scorched dust settling on radiators and odors from gaseous products of combustion in industrial districts detract considerably from the freshness and pleasantness of air.⁴⁵

Hill⁴⁶ attributes the chief cause of stuffiness in a heated room to the long infra-red rays emitted by dark or dull red sources of heat. He ascribes the congestion in the nose not to a direct effect of heat on the mucous membrane, as is generally believed, but to specific electromagnetic wavelengths acting reflexly from the sensory nerves of the skin. Rays from bright luminous sources ("nose-opening" rays) have an opposite effect, according to Hill, but this could not be demonstrated by others.⁴⁷

Air freshness as perceived by the skin is a function of temperature, air movement variability and humidity. The agreeable sensation of freshness is ascribed to a stimulating action of the cutaneous sensory nerves by mild air currents within the threshold of perceptibility. According to Baetzer⁴⁸ the threshold current on the skin of the cheek has a velocity of from 40 to 60 feet per minute at normal room temperatures. On the skin of the feet the threshold values seem to be considerably lower. The greater the temperature, the greater the threshold velocity and vice versa. A uniform air movement is regarded as monotonous and less stimulating than oscillating air currents below and above the threshold velocity. Here may lie, in part, the explanation for the preference of window ventilation over the mechanical systems, with temperature fluctuations closely related.

Temperature Changes.—Although a moderate variability of temperature is generally considered to be stimulating and probably beneficial, there is a happy medium beyond which extremes are destructive. Great contrasts such as those experienced in passing from an overheated room to cold outside air appear to be harmful to the mucous membranes of the upper respiratory

passages. The deleterious effects of low or high temperatures, apart from acute conditions (frost bite, heat stroke) do not seem to be due to cold or heat per se but largely to great temperature contrasts which produce congestion and ischemia and weaken the physiologic defenses against bacterial proliferation. Respiratory diseases and rheumatism are the chief disorders associated with exposure to great temperature changes. The highest rates are seen among iron and steel workers, miners, outdoor laborers and others who habitually expose themselves to great temperature contrasts.⁴⁹

The condition of the vasomotor system may play an important rôle in the whole situation for, as is well known, a secondary reactive vasodilatation occurs in healthy individuals during exposure to cold, with a rise of skin and deep tissue temperature and a general feeling of warmth. Metabolism and heart action are increased and the organism is in a better position to withstand the cold.

An adequate vascular system may not be successful in overcoming the ischemia incident on chilling. The vessels of the skin and nasal membranes remain constricted and the blood is diverted to the internal organs. Metabolism does not increase sufficiently to prevent the body temperature from falling. There is much good evidence to show that difficulties with the heat regulating mechanism of the body are fundamental in the predisposition to colds and other more serious ailments.

The inability of Kerr and Lagen⁵⁰ to transmit common colds from carriers to susceptibles in an air conditioned chamber might be explained by the control of predisposing environmental factors. Their experience, as well as that of Van Loghem⁵¹ and others, does not necessarily contradict the widespread belief in the contagiousness of the common cold even though the specific organism causing it has not as yet been identified.

Petersen⁵² and Mills⁵³ lay great stress on the effects of frequent atmospheric changes of temperature and barometric pressure which lead to nervous instability and a number of diseases of exhaustion.

Drafts.—In dealing with drafts, much simplification is possible by defining the conditions productive of drafts at the feet, the part of the body most sensitive to drafts owing probably to the comparatively poor blood circulation there. The back, the back of the neck and the top of the head are also sensitive to drafts, but the draft threshold of these parts is higher than that of the skin of the feet.

Although drafts and cold feet are often due to faulty heating and air distribution systems, the complaints under ordinary room conditions, coming as they do usually from a comparatively small percentage of the occupants, would seem to be more often associated with poor blood circulation and deficient vasomotor response than with faulty air conditions. They are apparently the result of a tendency to instability of the heat regulating mechanism in certain individuals as well as in normal persons under certain circumstances.

43. Yaglou, C. P.: Unpublished data.

44. Hosmer, M. N.: Observations on Patients in Air Conditioned Hospital Rooms, *Hospitals* 10: 87 (Oct.) 1936. Yaglou.⁴³

45. Winslow, C. E. A., and Herrington, L. P.: Subjective Reactions of Human Beings to Certain Outdoor Atmospheric Conditions, *Am. Soc. Heating & Vent. Engrs. Journal, Section Heating, Piping and Air Conditioning* 7: 551 (Nov.) 1935. Winslow and Herrington.³ Yaglou and others.⁴

46. Hill, Leonard: Discomfort of Close Rooms Caused by Infra-Red Rays, *Quart. J. Exper. Physiol.* 23: 35 (Aug.) 1933.

47. Dufton, A. F., and Bedford, T.: "Nose-Opening" Rays, *J. Hyg.* 23: 476 (Nov.) 1933. Winslow, C. E. A.; Greenburg, Leonard, and Herrington, L. P.: The Influence of Heat and Light upon Nasal Obstruction, *Am. J. Hyg.* 20: 195 (July) 1934.

48. Baetzer, A. M.: Threshold Air Currents in Ventilation, *Am. J. Hyg.* 4: 65 (Nov.) 1924.

49. Yaglou, C. P.: Abnormal Air Conditions in Industry: Their Effects on Workers and Methods of Control, *J. Indust. Hyg.* 10: 12 (Jan.) 1937.

50. Kerr, W. J., and Lagen, J. B.: Transmissibility of the Common Cold: Exposure of Susceptible Individuals under Controlled Conditions, *Proc. Soc. Exper. Biol. & Med.* 31: 713 (March) 1934.

51. Van Loghem, J. J.: An Epidemiological Contribution to the Knowledge of the Respiratory Diseases, *J. Hyg.* 28: 33 (Aug.) 1928.

52. Petersen, W. F.: The Patient and the Weather, vol. III, *Mental and Nervous Diseases*, Ann Arbor, Mich., Edwards Brothers, Inc., 1934.

53. Mills, C. A.: Climate as a Factor in the Health of Man, *Am. J. Hyg.* 13: 573 (March) 1932; *Health and Diseases as Influenced by Climatic Environment*, *Internat. Clin.* 2: 143 (June) 1936.

Numerous observations on myself at various times of the year for three consecutive years have shown an enormous variability of foot temperature and sensitivity to drafts under approximately identical conditions in my office while working at a desk for at least two hours before making observations. With comfortable breathing zone temperatures between 70 and 74 F., floor temperatures of 67 to 74, and air movement about the feet of from 20 to 70 feet per minute, the temperature of my feet near the ankles varied from 75 to 91 F. during the months of December to March. Much higher skin temperatures were recorded on all other parts of the body, the temperature ranging from 90 to 98 F. While the average foot temperature showed some relationship to floor temperature and air movement, many individual observations of different days showed no consistent relationship at all.⁴³ Bedford²⁵ likewise observed a great variability of foot temperature among a large group of British factory workers performing light work.

My threshold of draft occurred at a foot temperature of 80-82 F., regardless of air conditions. Uncomfortable drafts were felt at foot temperatures under 80. The lowest foot temperatures and the greatest difficulty with drafts were experienced during the month of February 1936, when I had a bad cold of long duration accompanied by considerable loss of weight. The highest foot temperatures (94-97 F.) were observed during the warm months of the year when the room temperature was between 85 and 95.

Complaints of drafts or cold feet from among large groups of men, women and children in experimental conditioned rooms occurred at any floor level temperature equal to or lower than the comfortable breathing zone temperature and at all air velocities produced by the apparatus; namely, from 20 to 65 feet per minute. The majority of the complaints came from women. The lowest foot temperature observed in this group was 74 and the highest 93, both under ordinary room conditions during the heating season. The lowest draft threshold occurred at a foot temperature of 78.

Theoretically it may be possible to reduce complaints of drafts among the minority by raising the foot level temperature and reducing the air movement to below the threshold of perceptibility. Practically this is difficult to accomplish with conventional heating systems without overheating the breathing zone for the majority of occupants. The problem would seem, therefore, to be one for the individual himself to solve by the use of suitable clothing that will protect the extremities against too rapid heat loss and in this way to compensate for inadequate vasomotor response. In order to assist the vasomotor system, certain reasonable limits of foot level temperature and air movement must be established that will be agreeable to the majority of normal individuals. Observations by Houghten⁵⁴ and those of my own indicate a foot level temperature not more than 2 degrees F. below the comfortable breathing zone temperature, with an air movement not over 40 feet per minute during the heating season.

Drafts on the feet or any other part of the body have a tendency to induce reflex vasoconstriction in the entire superficial area and vasodilatation in the mucous membranes of the nose. The blood pressure may rise and nasal capillary hemorrhage may result in sensitive persons. The problem has a great bearing on comfort

and health and deserves far more attention and study than it has hitherto been given.

Atmospheric Pollution.—Aside from specific industrial conditions, dusts, smoke and gases of combustion in ordinary city air are generally believed to be not so much matters of health as of nuisance and esthetics, capable of affecting comfort directly or indirectly. Although the damage to property and vegetation is considerable and generally recognized, the evidence on health aspects is quite controversial except under extreme conditions of pollution.⁵⁵

The control of atmospheric pollution is primarily a problem of city planning, but under present circumstances it has been more expedient to deal with it inside the buildings as part of air conditioning. Activities within the building itself constitute another source of pollution. The use of tightly fitting storm sashes and doors in conjunction with vacuum cleaning helps a great deal in reducing dustiness. The advantages of air filtration are limited to the larger dust particles, as very fine dusts, smoke and gases defy most of the filters in common use.

55 Shattuck Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

SPERTI SUNLAMP NOT ACCEPTABLE

Manufacturer: Science Laboratories, Inc., 424 East Fourth Street, Cincinnati (Successor to Science Laboratories).

One of the functions of the Council on Physical Therapy is to report, from time to time, on newly marketed devices recommended for use in physical therapy.

Such a device is the Sperti Sunlamp, regarding the merits of which the Council has recently received inquiries.

I. CONSTRUCTION AND OPERATION OF THE SPERTI SUNLAMP

This device consists of two lamps—the one within the glass enclosure of the other—constructed somewhat as described in U. S. patents 1,956,958 and 1,976,149. The outer bulb contains an incandescent tungsten filament, which provides a source of visible radiation. The much smaller, inner tubular enclosure contains a globule of mercury and electrically heated electrodes, which produce a thermionic conduction through the mercury vapor. The tubular enclosure of the mercury arc lamp is made of thick glass to absorb the rays of wavelengths shorter than about 2,800 angstroms.

The combined lamp can be screwed into an ordinary lighting fixture, without additional starting or controlling devices, and used in place of the ordinary incandescent lamp of similar wattage.

The lamps examined are designed for use on 110 to 120 volts and consume about 100 watts on about 115 volts. A considerable portion of the electric power consumed is used in the inner, mercury vapor, lamp. The temperature, candle power and ultraviolet emission of the tungsten filament in the Sperti Sunlamp is therefore considerably lower than that of a commercial 100 watt tungsten filament lamp, on normal operation.

For example, the illumination at one foot below the Sperti Sunlamp (in a frosted bulb, aluminum reflector, type NR) was 70 foot candles as compared with 120 foot candles for a

54. Houghten, F. C., and others: Classroom Drafts in Relation to Entering Air Stream Temperature, *Am. Soc. Heating and Ventil. Engrs. Journal Section, Heating, Pione and Air Conditioning* 7:356 (July) 1935.

55. Bloomfield, J. J.: Atmospheric Smoke Pollution and Its Relation to Public Health, *Outdoor Life* 25:457 (Aug.) 1928. Effect of Air Pollution on Health, *Bull. New York Acad. Med.* 7:751 (Sept.) 1931. Ruskin, S. L.: Pollution of the City Air as a Source of Nose and Throat Disturbance, *Science* 84:84 (July 24) 1936. Ventilation and Atmospheric Pollution, *Rept. Comm. on Ventilation and Atmospheric Pollution*, *Am. Pub. Health A. Year Book*, 1934-1935.

regular commercial 100 watt tungsten filament lamp (frosted bulb, no reflector). This information is of importance if an attempt is made to use the lamp for illumination.

II. ADVERTISING MATTER

No advertising matter was submitted by the firm. The advertising literature, sent to the Council by the public, contained unsubstantiated statements. The advertising in the daily newspapers, by purveyors of these lamps, if intelligently interpreted, gives ample warning to the prospective purchaser that the ultraviolet intensity of the Sperti Sunlamp is low and that he need not expect to obtain much ultraviolet from such a lamp, unless he has the patience to spend enough time under it to get a sufficient dose.

III. PHYSICAL MEASUREMENTS OF SPERTI SUNLAMPS

In the course of a year, five samples (three shipments) of Sperti Sunlamps were investigated in a laboratory acceptable to the Council. Three of the lamps were in frosted bulbs with aluminum reflectors attached (type NR 110 to 120 volts) and two of the lamps were in bulbs of clear glass—the one having a neckband reflector of aluminum. All lamps were new and in good condition. By means of a voltmeter and ammeter the power consumed in the lamp was regulated to 100 watts (about 115 volts) as specified.

1. *Spectral Radiation Measurements.*—Owing to the reduced temperature, the ultraviolet spectral intensities of the tungsten filament are too low for measurement. Using a Sperti Sunlamp in a bulb of clear glass, spectral intensity measurements were made on the emission lines of the mercury arc at 2,967, 3,024 and 3,132 angstroms and longer wavelengths. The relative spectral intensities of the mercury arc were found much the same as observed in certain types of acceptable sunlamps enclosed in glass bulbs. The total intensities, however, are much lower, owing to the small size of the arc.

2. *Integrated Ultraviolet and Candle Power Measurements.*—The illumination (foot candle) measurements were made with a newly standardized General Electric illuminometer. The integrated ultraviolet intensities were measured with a dosage intensity meter, consisting of a balanced amplifier, photo-electric cell and micro-ammeter. The titanium photo-electric cell used has its maximum spectral photo-electric response at 2,950 angstroms and it is insensitive to wavelengths longer than about 3,300 angstroms. It therefore gives a physical measurement of biologically effective radiation. By means of a filter, the measurements are confined principally to wavelengths 3,132 angstroms and shorter, recognized as having a specific effect in curing rickets. In the case of the Sperti Sunlamp this biologically effective radiation is confined principally to the three emission lines of the mercury arc at 2,967, 3,024 and 3,132 angstroms, respectively, the ultraviolet radiation contributed by the tungsten filament being exceedingly small. These three emission lines of the mercury arc therefore act as a substitute for the band of ultraviolet of wavelengths 2,950 to 3,132 angstroms in sunlight.

At a distance of one foot below the lower edge of the type NR frosted bulb lamps, the illuminometer indicated an intensity of 70 foot candles (100 watts in the lamp), and the intensity of the ultraviolet of 3,132 angstroms and shorter wavelengths was 0.07 micro-ampere (μA) on the ultraviolet meter (average of two lamps). In contrast, by actual measurement, 70 foot candles of sky light (noon day and mid-winter) through an open window produced a micro-ammeter reading of 0.35 micro-ampere per foot candle; the ultraviolet in sky light is five times that of the Sperti Sunlamp. Accepting the manufacturers' statement that the biologically active ultraviolet, per foot candle of the visible energy, is a close approximation of natural sunlight, with only 70 foot candles available in the Sperti Sunlamp as compared with from 8,000 to 10,000 foot candles in noon hour, midsummer sunlight, the total ultraviolet intensity in sunlight is from 100 to 150 times that available in the Sperti Sunlamp.

By calibrating the photo-electric ultraviolet meter against a standard of ultraviolet radiation, the intensity of the ultraviolet of wavelengths shorter than and including 3,132 angstroms at one foot below the Sperti Sunlamp (on 100 watts) was found to be 0.392 $\mu W/cm^2$ or 0.098 $\mu W/cm^2$ at two feet—the standard distance.

The Council's specification for acceptance of this type of sunlamp, for home use, is 27 $\mu W/cm^2$. In other words, the ultraviolet intensity of the Sperti Sunlamp (at two feet distance) is only about $\frac{1}{275}$ the value required for acceptance by the Council.

When the company was first informed that the Council voted not to include the Sperti Sunlamp in its list of accepted devices, the firm replied that it wished to submit biologic evidence; hence, publication of the Council's previously prepared report was postponed.

The evidence presented consisted in part of protocols of experiments on the prevention of rickets in rats by means of irradiation with Sperti Sunlamps. Test rats, fed a vitamin D free diet (Steenbock 110), were exposed to a battery of five Sperti Sunlamps at a distance of 15 inches for a minimum of two hours daily for twenty-one days. A similar group of rats was exposed to irradiation from five 60 watt tungsten lamps for two hours daily; a third group was fed the basal vitamin D free diet supplemented with adequate amounts of vitamin D, and a fourth group was retained as a negative control. In each instance the five lamps were fixed in a reflector of size $8\frac{1}{2}$ by 20 by 34 inches, made of sheet iron lined with aluminum foil. The average percentage of bone ash in each group of rats is reported as follows:

	Per Cent
Positive control	46.72
Sperti Sunlamp	47.00
Incandescent lamp	35.43
Negative control	34.51

Data were also submitted regarding the prevention of rickets in chickens fed an unspecified rachitogenic diet. The chickens were divided into three groups; one group was exposed to indirect light; the second group was housed under identical conditions, but the indirect light supplemented by irradiation from an unspecified number of Sperti Sunlamps for eight hours daily; the third group was housed under the same conditions, but the indirect light was supplemented by irradiation from an unspecified number of Sperti Sunlamps for four hours daily. In each instance the experiment was continued over a period of four weeks. The distance from the lamp to the chickens was not given. Roentgenograms of the leg joint of the chickens were submitted. These roentgenograms indicated that the chickens irradiated by the Sperti Sunlamps were protected from rickets. Photographs of two of the irradiated chicks showed them improved in health but still rough feathered.

The firm's report was given careful consideration. It was noted, however, that prolonged irradiation from a number of the lamps was required to produce an antirachitic effect in either rats or chickens. In the case of rats it was necessary to place the reflector containing five Sperti Sunlamps at a distance of 15 inches from the backs of the animals.

The foregoing biologic evidence, in the opinion of the Council, was not satisfactory and the firm was given an opportunity to submit further biologic data.

These consisted of irradiation tests on rats, housed in screened cages, 20 by 18 by 18 inches, and fed on a rickets-producing diet. The lamps used to irradiate the rats were of the clear glass bulb type, mounted horizontally in the tops of the cages so that the mercury vapor arcs were approximately in the center of the cages. An aluminum painted reflector was mounted directly above each light. It appears therefore that the heads (ears) and backs of the rats were at a distance of 5 to 7 inches from the mercury glow discharge in the lamp.

The rats, thus housed, were irradiated two hours daily and, at the expiration of seven days, roentgenograms of the leg joints showed appreciable healing of rickets.

This supplementary report was given careful consideration. It was noted that the lamp had not been operated in a practicable position; that if the lamp had been operated in the customary manner (lamp vertical) and at the customary distance of 24 inches, the intensity would have been reduced by one fourth to one seventh, requiring an exposure of eight to fourteen hours or more daily, as compared with the two hours daily used to effect the healing indicated in the roentgenograms. It was noted also that the results obtained with the one lamp at the shorter distance supported the evidence of healing of rickets obtained with five lamps at approximately twice the distance, rejected in the preceding consideration of this lamp.

In the meantime the Council in cooperation with its consultants and referees gave careful consideration to the specifications for acceptance of sunlamps. They agreed that the present specifications of intensities for acceptance of ultraviolet lamps for use by physicians and sunlamps sold for use by the laity, are fair and reasonable and require no revision.

In the opinion of the Council, the biologic data submitted indicate that the antirachitic potency of the radiation from the Sperti Sunlamp is very low; as already noted in the physical measurements. The ultraviolet intensity of this lamp does not meet the specifications of the Council for acceptable ultraviolet lamps for home use. Therefore the practicability of the use of the Sperti Sunlamp for the prevention of rickets in children based on these data is not convincing. The Council therefore reaffirmed its previous stand and voted not to include the Sperti Sunlamp in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ACETARSONE-ABBOTT (See New and Nonofficial Remedies, 1936, p. 90).

The following dosage forms have been accepted:

Tablets Acetarsone, 0.05 Gm.
Tablets Acetarsone, 0.1 Gm.

TETANUS TOXOID, ALUM PRECIPITATED (See THE JOURNAL, May 16, 1936, p. 1735; Revised Supplement to New and Nonofficial Remedies, 1936, p. 16).

Eli Lilly and Company, Indianapolis, Ind.

Tetanus Toxoid, Alum Precipitated (Lilly).—Marketed in packages of two 0.5 cc. vials (one immunization treatment); and in packages of one 5 cc. vial (five immunization treatments).

CALCIUM GLUCONATE-ABBOTT (See THE JOURNAL, March 20, 1937, p. 973).

The following dosage form has been accepted:

Tablets Calcium Gluconate-Abbott (Flavored), 1 Gm. (15½ grains).

SALYRGAN (See New and Nonofficial Remedies, 1936, p. 308).

The following dosage form has been accepted:

Suppositories Salyrgan: Each suppository contains salyrgan 0.4 Gm., corn starch 0.1 Gm., and cocoa butter 1.3 Gm.

DEXTROSE (See New and Nonofficial Remedies, 1936, p. 290).

The following dosage forms have been accepted:

The Sterisol Ampoule Corporation, Long Island City, N. Y.

Sterisol Ampoule Dextrose 2½% in Physiological Solution of Sodium Chloride: A solution containing in each 100 cc. 2.5 Gm. of anhydrous dextrose and 0.85 Gm. of sodium chloride. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 10% in Physiological Solution of Sodium Chloride: A solution containing in each 100 cc. 10 Gm. of anhydrous dextrose and 0.85 Gm. of sodium chloride. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 20% in Physiological Solution of Sodium Chloride: A solution containing in each 100 cc. 20 Gm. of anhydrous dextrose and 0.85 Gm. of sodium chloride. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 25% in Physiological Solution of Sodium Chloride: A solution containing in each 100 cc. 25 Gm. of anhydrous dextrose and 0.85 Gm. of sodium chloride. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 5% in Distilled Water: A solution containing in each 100 cc. 5 Gm. of anhydrous dextrose. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 10% in Distilled Water: A solution containing in each 100 cc. 10 Gm. of anhydrous dextrose. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 20% in Distilled Water: A solution containing in each 100 cc. 20 Gm. of anhydrous dextrose. Supplied in ampules containing 250, 500 and 1,000 cc.

Sterisol Ampoule Dextrose 25% in Distilled Water: A solution containing in each 100 cc. 25 Gm. of anhydrous dextrose. Supplied in ampules containing 250, 500 and 1,000 cc.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

HERSHEY'S BRAND CHOCLATIER

Manufacturer.—Hershey Chocolate Corporation, Hershey, Pa.

Description.—Powdered mixture of chocolate liquor, roasted cacao beans, powdered skim milk and pulverized cane sugar.

Manufacture.—Skim milk powder, chocolate liquor and pulverized cane sugar are mixed, cooled, sieved and automatically packed in glassine envelopes, which are mechanically sealed and packed in boxes.

Analysis (submitted by manufacturer).—Moisture 1.1%, ash 2.9%, ash insoluble in water 1.9%, ash insoluble in acid 0.02%, fat 16.0%, cacao fat 15.9%, milk fat 0.1%, protein (noncaffeine and nontheobromine $N \times 6.25$) 13.6%, sucrose 42.8%, lactose 14.4%, skim milk solids 27.4%, crude fiber 0.8%, carbohydrates other than crude fiber (by difference) 65.6%, *theobromine 0.4%, *caffeine 0.03%.

Moisture-free, fat-free and sugar-free, milk solids free basis—ash 6.3%, ash insoluble in acid 0.2%, crude fiber 6.2%.

Calories.—4.60 per gram; 131 per ounce; 196.5 per envelop (1½ ounces).

* By Prochnow's Modification of the Beckurts-Fromme method, *Arch. d. Pharmaz.* 247: 698, 1910.

SEXTON BRAND GRAPEFRUIT, WATER PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned grapefruit, packed in water.

Manufacture.—Grapefruits are steam heated, hand peeled, subjected to alkali bath, water sprayed and dipped in cold water. Sections are removed by hand, seeded and placed in cans to which water has been added. Cans are exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 91.4%, total solids 8.6%, ash 0.34%, fat (ether extract) 0.2%, protein ($N \times 6.25$) 0.6%, crude fiber 0.14%, carbohydrates other than crude fiber (by difference) 7.4%.

Calories.—0.33 per gram; 9 per ounce.

Claims of Manufacturer.—For diets in which sweetened fruit is proscribed.

LOUELLA BUTTER

Distributor.—American Stores Company, Philadelphia.

Description.—Packaged, salted, pasteurized butter scoring 92 points or over by U. S. Department of Agriculture standards.

Manufacture.—Cream produced by tuberculin tested cows is delivered four times weekly and inspected for cleanliness, flavor, odor and acidity. The cream is pasteurized, cooled, strained and churned. The butter is washed with cool water, salted, tested for moisture, printed into blocks, cooled, wrapped and packed.

Analysis (submitted by manufacturer).—Moisture 15.9%, total solids 84.1%, milk fat 80.7%, curd 0.7%, sodium chloride (NaCl) 2.6%.

Calories.—7.26 per gram; 206 per ounce.

STANDBY BRAND TOMATO JUICE

Distributor.—Fine Foods, Inc., Seattle and Minneapolis.

Packer.—Vincennes Packing Corporation, Vincennes, Ind.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice; the same as Alice of Old Vincennes Tomato Juice (*THE JOURNAL*, Feb. 20, 1932, p. 640).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 15, 1937

CANCER OF THE LUNG

Cancer of the lung seems unmistakably to be steadily increasing in frequency. This increase, both relative and absolute, cannot be explained as being solely due to improvement in diagnostic technic and to more careful postmortem studies. Accurate descriptions may be found in the writings of Rokitsansky, Virchow, Laënnec, Graves and many others. Whereas older clinicians regarded it as rare, it has in the past two decades come to occupy a place second in importance only to such common localizations of malignant growths as the stomach, the uterus and the rectum. This fact has been emphasized in England, in the United States and to an even greater degree in central Europe. The incidence, as cited in recent statistical reports, varies between 5 and 10 per cent of all cancers.

Among the contributing factors to this increase, the injurious effects of tobacco smoking, exhaust gases from automobiles, tar on roads and the influenza epidemic of 1918-1919 have been suggested. None of these can be accepted as definitely causative. Arkin and Wagner¹ state that 90 per cent of their patients were chronic smokers. They believe that inhalation of tobacco smoke may be an important factor in producing chronic irritation with epithelial metaplasia in the bronchi or bronchioles. The disease is preponderantly more common in males than in females, about two thirds of all cases occurring between the ages of 40 and 60. Occupation probably does not play an important part and evidence regarding the influence of preexisting pulmonary disease is not convincing. Edwards² emphasizes the fact that in a number of his patients the history was peculiarly free from illness in any form. A persistent cough, hemoptysis and thoracic pain of a severe and continuous type, in a man past the age of 40, are highly suggestive of pulmonary cancer. However, many of the cases of pulmonary carcinoma may be without pulmonary symptoms, their earliest manifestations being those of the metastases away from

the thoracic cage. Thus, in Arkin and Wagner's series of 135 cases, 51 per cent presented extrapulmonary signs and symptoms and only 49 per cent presented symptoms referable to the pulmonary tissue.

Recent histologic studies of malignant lesions of the lung have demonstrated that most of the round cell, "oat" cell and spindle cell sarcomas of the lung are in reality carcinomas of bronchogenic origin. The majority of the carcinomas of the lung are of the squamous cell type. Tuttle and Womack³ call attention to the faculty of the bronchial epithelium to change its morphologic characteristics when subjected to trauma or chronic irritation. The hyperplastic and metaplastic changes taking place may in reality be the first step in carcinogenesis. Attractive as this theory seems, it has found little support in clinical facts. Tuttle and Womack themselves state that of the seventy-six cases of primary bronchiectasis in persons of the cancer age seen in the chest service of the Barnes Hospital there has been observed only one patient who subsequently developed bronchogenic carcinoma. Bronchopulmonary carcinoma displays a tendency to give rise to metastases to the liver, bones, spleen, pancreas and, with a characteristic frequency, to the suprarenals and the brain. According to Tuttle and Womack, tumors of the major bronchi give symptoms early, extend more slowly and are more amenable to surgical treatment, while tumors of the minor bronchi and of the periphery of the lung cause fewer early symptoms and are more rapidly fatal.

As with the carcinomas elsewhere, the primary problem is that of early diagnosis. When one considers that x-ray examination of the chest alone is capable of rendering a correct diagnosis of carcinoma in not less than two thirds of all the cases, this problem should not be considered difficult. Bronchoscopic examination in the hands of an expert is valuable not only because it can visualize the tumor within the main bronchus but even more so because of the possibility of obtaining a biopsy specimen. According to Chevalier L. Jackson,⁴ bronchoscopic biopsy will be positive in about 75 per cent of the cases of bronchial carcinoma.

The therapeutic possibilities of bronchopulmonary cancer presented a rather hopeless outlook until the recent bold advances of thoracic surgery offered a ray of hope for at least the cases of a localized tumor before metastases have taken place. Most of the pulmonary carcinomas, including the squamous type, are radio-insensitive. Graham⁵ states that there is no record in the literature of successful radiotherapy of a single case in which the pathologic evidence has been incontrovertible and in which five year intervals without recurrence have elapsed between the treatment and the time of reporting the case, despite the fact that

3. Tuttle, W. M., and Womack, N. A.: Bronchiogenic Carcinoma: A Classification in Relation to Treatment and Prognosis, *J. Thoracic Surg.* 4: 125 (Dec.) 1934.
4. Jackson, C. L.; and Konzelmann, F. W.: Bronchial Carcinoma: Bronchoscopic Biopsy in a Series of Thirty-Two Cases, *J. Thoracic Surg.* 4: 165 (Dec.) 1934.
5. Graham, E. A., and Singer, J. J.: Successful Removal of the Entire Lung for Carcinoma of the Bronchus, *J. A. M. A.* 101: 1371 (Oct. 28) 1933.

1. Arkin, Aaron, and Wagner, D. H.: Primary Carcinoma of the Lung, *J. A. M. A.* 106: 587 (Feb. 22) 1936.
2. Edwards, A. T.: Malignant Disease of the Lung, *J. Thoracic Surg.* 4: 107 (Dec.) 1934.

many cases have been treated according to the most modern methods of using both x-rays and radium. There have been cases, however, in which surgical intervention has resulted in amelioration of symptoms as well as in at least temporary cures. These interventions have been principally lobectomies and occasional pneumonectomies. Graham successfully removed at one stage an entire left lung. Overholt⁶ removed the entire right lung. While the total number of pneumonectomies is small, probably not over a dozen, the future of the therapy of pulmonary cancer is not utterly hopeless.

RESEARCH IN DEMENTIA PRAECOX

Dementia praecox has been for many years the great unsolved problem in psychiatry. At present institutions for psychotic patients have a population of more than 400,000, and admissions seem to approximate 130,000 more each year. From time to time a glimmer of hope appears with the announcement of a new investigation which opens the path to a better understanding of some of the more serious psychiatric disorders and thereby the possible diminution of the number of patients demanding care. Thus the application of the results secured by Wagner-Jauregg has had a profound effect on the treatment of dementia paralytica. The time is yet too short to say with any certainty what will eventuate from the application of the use of insulin shock in the treatment of dementia praecox.

In a desire to be helpful in this field, where help is so greatly needed, the Supreme Council of the Scottish Rite Masons of the Northern Jurisdiction of the United States appropriated funds to be used in connection with research on dementia praecox. Approximately \$100,000 has already been allocated to assist in financing fourteen research projects approved by a scientific advisory committee.¹ As a first step in this work the committee determined to assemble the available medical periodical literature on the subject and to endeavor to correlate this material so as to obtain from the analysis suggestions or indications as to trends that might be useful in allocating additional funds for research. Unfortunately, this compilation of the available material seems to indicate a rather sterile past and does not apparently offer much in the way of indications as to logical opportunities for investigation in the future. This, in fact, would seem to be the conclusion reached by Prof.

Nolan D. C. Lewis,² since his final statement of conclusions indicates that the extensive work of the past and the thousands of articles that have been published yield little immediately applicable in the handling of the problem of dementia praecox. This should not, however, be reason for despair. Certainly it is valuable to know the character of the problem that confronts the investigator and the numerous blind alleys that have been followed by previous investigators.

The next step in the study of dementia praecox would seem to be an earnest taking of stock by those in whose hands the solution of the problem has been placed and the establishment of a systematic, well organized program of research based on the defining of problems the solution of which may form the basis for further study. The answer to the problem of dementia praecox will not perhaps be found along any single track of investigation. The histologist, the biologist, the student of metabolism, the psychiatrist and the psychoanalyst may each have a phase of this problem, which must be thoroughly studied before a real solution becomes apparent. Conceivably the basis of the disorder lies so deep in genetics that the answer must inevitably be prevention rather than cure. For the program, however, the medical profession may well look to the distinguished committee that has the problem in hand.

ANTIHEMORRHAGIC FACTOR IN FOODS

A new vitamin-like substance is apparently in process of gradual evolution. Its qualities are antihemorrhagic and tentatively it is called vitamin K. The substance is found in association with vitamin C (cevitamic acid) and can be separated from it. It is also obtained in relative abundance from alfalfa. Its structure is said to be complex; in concentrated form it is a colorless, unsaturated compound unstable to alcoholic alkalis even in the absence of air. Color tests indicate the presence of the indole nucleus, and analyses show a small nitrogen content with no trace of sulfur or phosphorus.³

The experimental data concerning this vitamin are derived for the most part from investigations on the chick. Szent-György² found striking differences between chicks made scorbutic by dietary deficiency which were given this vitamin and those which were not. The latter were shorter lived, lost more weight, had more fragile bones and showed more hemorrhages into the joints, intestine and muscles. These differences, Szent-György believed, were largely due to a specific influence on the capillary system.

Dam, Schönheyder and Lewis³ worked with ducklings, geese, pigeons and canaries; also with dogs, rats,

6. Overholt, R. H.: The Total Removal of the Right Lung for Carcinoma. *J. Thoracic Surg.* 4: 196 (Dec.) 1934.

1. The committee includes Dr. Albert M. Barrett (deceased), medical director, State Psychopathic Hospital, University of Michigan; Mr. H. Edmund Bullis, executive officer, the National Committee for Mental Hygiene, and secretary, Committee on Research; Dr. Clarence M. Hincks, general director, the National Committee for Mental Hygiene; Melvin M. Johnson, LL.D., Most Puissant Sovereign Grand Commander of the Supreme Council 33° A. A. A. Scottish Rite (Northern Masonic Jurisdiction, U. S. A.); Dr. Adolf Meyer, professor of psychiatry at Johns Hopkins University and director of the Phipps Psychiatric Clinic, Johns Hopkins Hospital; Dr. Winfred Overholser, former commissioner, Massachusetts Department of Mental Diseases; Dr. Arthur H. Ruggles, president, the National Committee for Mental Hygiene; Dr. Edward Strecker, professor of psychiatry, University of Pennsylvania and chief of service and consultant, Institute for Mental Hygiene of the Pennsylvania Hospital, and Dr. William A. White (deceased), superintendent, St. Elizabeth's Hospital, Washington D. C.

2. Lewis, Nolan D. C.: Research in Dementia Praecox, National Committee for Mental Hygiene, New York.

1. Almquist, H. J.: Chemical and Physical Studies of the Antihemorrhagic Vitamin, *J. Biol. Chem.* 117: 517 (Feb.) 1937.

2. Bentsath, A.; Rusznyak, S., and Szent-Györgyi, A.: Vitamin Nature of Flavones, *Nature* 138: 798 (Nov. 7) 1936.

3. Dam, Henrik; Schönheyder, Fritz, and Lewis, Liese: The Requirement for Vitamin K of Some Different Species of Animals, *Biochem. J.* 31: 22 (Jan.) 1937.

guinea-pigs, rabbits and pigs. They studied the changes in clotting time of the blood from these animals following administration of the new factor under experimentally controlled conditions. Chicks and ducklings showed definite, positive responses, pigeons and canaries less. The results in mammals were inconclusive. The hemorrhagic diathesis produced in dogs by prolonged inanition they did not believe due to lack of this factor. They felt that the ability to dispense with it might be explained by lack of physiologic need for it in some species, by possible animal synthesis of the vitamin, or by synthesis of the vitamin by intestinal bacteria.

No real correlation to hemorrhagic diseases in man has as yet been adduced. However, hemophilia, scurvy and purpura offer fertile fields for research. In hemophilia the deficient functioning of the thrombocytes was pointed out earlier by Howell and Cekada, supplementing Howell's earlier theory regarding the rôle of prothrombin in blood clotting. The latter view was supported by the recent work of Patek and Taylor.⁴ In "vitamin K" avitaminosis it is prothrombin that is virtually absent, and the possible relationship between the two is of considerable interest.

Dam and his associates observed no beneficial effects from use of this factor in a case of hemophilia. Great caution is indicated in drawing conclusions from human cases of any type showing hemorrhagic symptoms. "Results" have been claimed for the use of everything from bee stings to autohemotherapy. In capable hands the exploration of the possibilities of this new vitamin may lead to the further elucidation of the mystery of the clotting of blood.

Previously, when vitamins were discovered, the tendency became international to name them alphabetically. However, with the further elucidation of vitamins and in particular the vitamin B complex, it becomes evident that this method of nomenclature is unscientific and should be discarded. Instead, the discoverer may well coin a name nontherapeutic in character and indicative of the composition. In line with this, the Council on Pharmacy and Chemistry of the American Medical Association has recently adopted the term riboflavin, which has been suggested by others, in preference to the term lactoflavin for vitamin G. The action of the Council regarding this matter was first referred to biochemists for comment. The Council has at present under consideration a name for pure vitamin B₁; while a number of names have been suggested, an agreement has not yet been reached by the discoverers of the crystalline vitamin B₁ and of synthetic vitamin B₁ with representatives of the Committee on Nomenclature or with the Society of Biological Chemists. The time is not too soon to begin thinking of some suitable scientific appellation for the evolving anti-hemorrhagic factor tentatively called vitamin K.

4. Patek, A. J., Jr., and Taylor, F. H. L.: The Blood in Hemophilia, *Science* **84**: 271 (Sept. 18) 1936; Hemophilia: II. Some Properties of a Substance Obtained from Normal Human Plasma Effective in Accelerating the Coagulation of Hemophilic Blood, *J. Clin. Investigation* **16**: 113 (Jan.) 1937.

Current Comment

THE ARMY MEDICAL LIBRARY AND MUSEUM

In the Army Medical Library and Museum in Washington, D. C., are housed some of the finest collections available in the field of medicine. The library now contains some 400,000 bound and unbound books and approximately 600,000 pamphlets and periodicals. Included in this material are about 450 incunabula of the total 600 in existence. This library and its Index Catalogue have been recognized everywhere as among the greatest of bibliographic facilities in the world. The House of Delegates of the American Medical Association has repeatedly gone on record as favoring a new building to house these invaluable collections. The present building was constructed in 1887 and the contents of both the library and the museum have outgrown their accommodations. Whether the Army Medical Library and Museum building is erected on the site of the Army Medical Center to round out that institution, which includes the Walter Reed General Hospital, the Army Medical, Dental and Veterinary Schools and the Biological Laboratory, or is to adorn one of the beautiful parkways or drives elsewhere in Washington is really not the vital consideration. The need for a new building is pressing. The construction of such a building would give opportunity for modernizing the equipment and making the materials far more available than they are now. It would serve as a monument to medicine in consideration of its services to human welfare.

MORE MEDICAL MISINFORMATION FROM CONSUMER'S RESEARCH

Consumer's Research, which formerly limited its publications largely to the confidential bulletin circulated among its subscribers, now comes forth with *Consumers' Digest*, published by Editor Schlink with a view, no doubt, to reaching a larger audience. An article on "Diet and Common Colds" again emphasizes the inherent fallacy of discussions of medical subjects by untrained writers. This article calls attention to "an important study" by Frederick Hoelzel. Some comments by Hoelzel were reported briefly in *Science* in 1928 when he was a guest investigator in the Department of Physiology of the University of Chicago. He then wrote that observations over a period of years on one subject, himself, suggested a relation between diet and the incidence of colds. Hoelzel had on several occasions practiced periods of fasting. He remained in good health while fasting but invariably contracted a cold when he resumed eating. He reasoned that the diet affected the degree of hydration of the tissues, which in turn was related to susceptibility to colds. High carbohydrate diets increased hydration and susceptibility, and high fat diets decreased both, he thought. Contrary to substantial evidence, Hoelzel suggested that the relative freedom of arctic explorers from colds is due to the decreased carbohydrate intake rather than to the absence of bacteria. In 1934 Hoelzel

wrote "I have abandoned the idea of using a high fat diet, such as I advocated in 1928, for the prevention of colds and nutritional hydration." This second article was ignored by the article in *Consumers' Digest*, which states that a diet consisting of adequate protein with a minimum of carbohydrate "proved to be" the most efficacious in the prevention of colds, while a diet high in carbohydrate with a restricted protein intake was accompanied by difficulty with colds. The recommended diet for the prevention of colds would consist of liberal portions of lean meat, poultry, fish, cheese, eggs and other animal products, with a restricted intake of potatoes, corn, beans, cereal, pastry, candy, syrup, soft drinks, ice cream, sherbet, alcoholic liquors, sweet fruits and—of all things—fruit juices. Again, apparently without adequate consultation with medical authority, and this time even without adequate survey of recently available evidence, Consumer's Research presumes to dispense bad medical advice to its perhaps too trusting readers.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Society News.—The San Francisco County Medical Society devoted its April 13 meeting to a symposium on splenic disease at which the speakers were Drs. Stacy R. Mettler, Salvatore P. Lucia, H. Brodie Stephens, Leo Henry Garland and Zera E. Bolin.—Dr. Robert W. Lamson, Los Angeles, addressed the San Diego County Medical Society, April 13, on "Allergy, Its Application in General Practice."

Bust of Dr. Widney.—A bust of Dr. Joseph P. Widney was presented to the library of the Los Angeles County Medical Association, May 11. Dr. Widney, who is 95 years of age, was present at the ceremonies. He was the founder of the College of Medicine of the University of Southern California and dean and professor of medicine on its faculty for many years. He was president of the University of Southern California from 1892 to 1895.

Dr. Hoffmann Lectures on Syphilis.—Dr. Erich Hoffmann, professor of dermatology and syphilology, University of Bonn, Germany, addressed the faculty and students of Stanford University School of Medicine, San Francisco, April 13, on congenital syphilis, and a special meeting of the San Francisco County Medical Society, April 16, on efforts and attainments in the early treatment of syphilis. He addressed the Los Angeles Dermatological Society, April 5, on *Spirochaeta pallida* and the early investigation of the arsphenamines by Ehrlich; at a special meeting he was elected an honorary member of the society. In San Francisco Dr. Hoffmann was given the "key to the city" by Mayor Rossi and made honorary president of the San Francisco Dermatological Society.

COLORADO

Society News.—Dr. George W. Crile, Cleveland, addressed a joint banquet of the Medical Society of the City and County of Denver and the staff of Children's Hospital, April 6.—The Mesa County Medical Society was addressed in Grand Junction, April 20, by Drs. Edward E. H. Munro on "Intestinal Obstruction"; Guy C. Cary, "Superstition in Treatment of Diseases of the Eye," and Herman C. Graves, "Orthostatic Albuminuria."—Dr. Robert H. Fitzgerald, Leadville, read a paper on "Physiology, Pathology and Treatment of Edema of the Brain" before the Prowers County Medical Society in Lamar, April 6.—At a meeting of the Northwestern Colorado Medical Society in Steamboat Springs, March 25, Dr. William W. Sloan, Mount Harris, discussed the "Roger Anderson Method of Reduction and Treatment of Fractures."

CONNECTICUT

State Medical Meeting at Bridgeport.—The one hundred and forty-fifth annual meeting of the Connecticut State Medical Society will be held at Bridgeport, May 19-20, with headquarters at the Hotel Stratfield and under the presidency of Dr. Daniel C. Patterson, Bridgeport. Included on the program are the following:

- Dr. Howard A. Kelly, Baltimore, *Reminiscences in the Development of Gynecology.*
- Dr. Porter P. Vinson, Richmond, Va., *Diagnosis and Treatment of Primary Malignant Disease of the Tracheobronchial Tree.*
- Dr. George Levene, Boston, *Value of Roentgenologic Study in the Diagnosis of Heart Disease.*
- Dr. Elias W. Abramowitz, New York, *Eruptions Caused by Commonly Used Drugs.*
- Dr. Allan K. Poole, New Haven, *Conservative Treatment of Syphilis.*
- Dr. John Homans, Boston, *Symptomatology of Surgical Diseases of the Anus and Rectum.*
- Dr. Charles Sidney Burwell, Boston, *Factors in the Treatment of Asymptomatic Period of Heart Disease.*
- Dr. David Weisberger, Boston, *Studies in Vitamin C Content of Blood in Patients with Dental Abnormalities.*
- Dr. Samuel J. Kopetzky, New York, *Clinical Picture of Suppurative Lesions of the Petrosal Pyramid.*
- Dr. Clyde E. McDannald, New York, *Practical Points in Operative Surgery of the Eye.*
- Dr. Foster Kennedy, New York, *The Paranoiac in Court.*
- Dr. Ralph M. Tovell, Hartford, *Preliminary Report on the Reorganization of the Section on Anesthesia, Hartford Hospital.*
- Dr. Louis S. Goodman, New Haven, *Chemical Mediation of Nerve Stimuli.*
- Dr. Brian C. Sword, New Haven, *Analysis of Peridural Anesthesia as Employed at Grace Hospital.*

James Rowland Angell, president of Yale University, New Haven, will speak at the annual dinner of the society Wednesday evening. Hon. Meier Steinbrink, justice of the Supreme Court, New York, will address a dinner meeting of the section on neurology and psychiatry on "The Medical Witness." At a luncheon Wednesday, Dr. Catharine Macfarlane, Philadelphia, will discuss "Carcinoma Developing in the Uterus After Irradiation Menopause" before the Women's Medical Society of Connecticut. Thursday afternoon Alexander O. Gettler, Ph.D., New York, will address the Connecticut Medical Examiners Association on "Toxicology in Medical Legal Autopsy" and Dr. Parker Dooley, New York, the Hezekiah Beardsley Pediatric Club on "Bacillary Dysentery in Childhood." A special session of the American Society of Anesthetists will conclude the day's program. The annual secretaries' conference will be held Thursday at a luncheon session.

ILLINOIS

Personal.—Dr. Eli G. Davis, Lewistown, was guest of honor at a dinner, February 15, to celebrate his eighty-fourth birthday.—Dr. Robert R. Smith has resigned as superintendent of the Kankakee State Hospital, Kankakee, to return to private practice, it is reported. Dr. George W. Morrow is acting head of the institution.

Society News.—Dr. Clarence F. G. Brown, Chicago, addressed the Lake County Medical Society, April 12, on medical management of intractable ulcer and medical management of low grade gallbladder disease.—The St. Clair County Medical Society was addressed in Belleville, April 7, by Drs. Duff S. Allen and Cyril M. MacBride, both of St. Louis, on surgical treatment of toxic goiter and borderline goiter conditions respectively. Dr. Willard C. Scrivner addressed the East St. Louis meeting, April 1, on cancer of the uterus.—Constituent societies of the eighth district were addressed, April 7, by Drs. Winston H. Tucker and Paul H. Harmon, both of the state department of public health, and Harold M. Camp, Monmouth, secretary, Illinois State Medical Society, on the social security act.

Chicago

Hospital News.—There is a residency open in physical therapy at Michael Reese Hospital, effective July 1. Applicants must be graduates of class A schools and must have completed their internship. Additional information may be obtained from Dr. Charles O. Molander at the hospital.

Study of Eclampsia Cases.—Dr. Joseph B. De Lee wishes to obtain two or three cases of eclampsia for a motion picture. The patients may be sent to the Chicago Lying-In Hospital, where the physician may continue his own treatment. No charge for hospital care or ambulance will be made.

Branch Society Meetings.—The North Side Branch of the Chicago Medical Society held its annual May party at the Lake Shore Athletic Club, May 6. Dr. Frank P. Thompson showed motion pictures of "An African Hunting Trip." Dr. Reed M. Nesbit, Ann Arbor, discussed "Water Requirements of the Surgical Patient" before the Aux Plaines Branch April 23. At a meeting of the South Chicago Branch, April 27, Dr. Wilber E. Post spoke on "Nephrosis and Nephrotic

Edema." A symposium on low back pain was presented before the Douglas Park Branch, April 20, by Drs. Maurice I. Kaplan, Edward L. Cornell, Edward W. White and Felix M. Jansey.

IOWA

Annual Renewal Fees Due Before June 1.—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license a licentiate must make a written application to the state department of health before June 1, enclosing the renewal fee of \$1. If a license expires by reason of the licentiate's failure to renew it, it can be reinstated without reexamination only on the recommendation of the state department of health and the payment of the overdue fees.

Central District Meeting.—The annual meeting of the Iowa and Illinois Central District Medical Association will be held at the Outing Club, Davenport, May 27. The following program will be presented: Drs. French K. Hansel, St. Louis, "Allergy"; Walter C. Alvarez, Rochester, Minn. (subject to be announced); Arthur E. Hertzler, Halstead, Kan., "Surgery of the Thyroid," and William W. Bauer, Director, Bureau of Health and Public Instruction, American Medical Association, Chicago, "Popular Beliefs That Are Not So."

University Offers Services of Pediatrician.—The department of pediatrics of the University of Iowa College of Medicine, Iowa City, has placed the services of a staff member, Dr. Mark W. Dick, at the disposal of the speakers' bureau of the state medical society. Dr. Dick will speak before county medical societies on pediatric subjects. At afternoon meetings he will examine any medically crippled child (diabetic and cardiac). For the afternoon meetings the following rules have been formulated: the work will be undertaken only at the request of the county medical society, and under the direction of the family physician, and will be available for children in indigent families only.

KANSAS

Personal.—Dr. Charles E. Vestle, Holton, has been appointed physician for the Kansas state prison at Lansing. —Dr. Albert G. Smith, Oskaloosa, was guest of honor at a dinner given by the Shawnee County Medical Society at Topeka, April 5, in celebration of his completion of fifty years in the practice of medicine. —Dr. David W. Basham, Wichita, was recently named president emeritus of the Sedgwick County Medical Society, in recognition of his many years of service in the community. Dr. Basham has been in practice in Kansas for fifty-four years. He was president of the society in 1917. —Dr. Edwin M. Ireland, Coats, has been appointed health officer of Pratt County, succeeding Dr. Charles E. Phillips. —Dr. Theodore W. Weaver has been named mayor of Wichita.

MAINE

The Frederic Henry Gerrish Library.—A circulating library has been created at the Central Maine General Hospital, Lewiston, through a grant of the Bingham Associates in honor of the late Dr. Frederic Henry Gerrish, who was at one time professor of anatomy at Bowdoin College Medical School, Portland. Material in the library, which now contains seventy-five journals together with a large collection of reprints, will be available to all members of the state medical association. Dr. Gerrish received his degree of doctor of medicine from Bowdoin in 1869 and practiced in Portland from 1870 until his death in 1920. He was professor of materia medica and therapeutics until 1882 and professor of surgery from 1905 to 1911. He was president of the Maine Medical Association, 1901-1902, and of the American Therapeutic Society, 1908-1909.

MARYLAND

Personal.—Drs. LeGrange B. Byington, surgeon, U. S. Public Health Service, in charge of the Baltimore Quarantine Station at Curtis Bay, and Dr. Roy R. Jones, passed assistant surgeon of the service, assigned to the division of labor standards of the U. S. Department of Labor, have been appointed members of the advisory committee on sanitation of the Baltimore City Health Department. Dr. Byington will fill the vacancy created when Dr. Harry F. White was transferred from the local quarantine station, according to *Baltimore Health News*.

Dr. Mustard to Succeed Dr. W. H. Park.—Dr. Harry Stoll Mustard, associate professor of public health administration in the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, has been appointed Hermann

M. Biggs professor of preventive medicine and director of the laboratories of preventive medicine at New York University College of Medicine, succeeding Dr. William H. Park, who retired last year. Dr. Mustard formerly was connected with the U. S. Public Health Service, and he went to Tennessee in 1924 as director of the child health demonstration of the Commonwealth Fund at Murfreesboro. In 1932 he resigned as director of health education and of child hygiene and public health nursing in the Tennessee State Department of Health to take charge of the newly created public health district in Baltimore, under the auspices of the Rockefeller Foundation and the Johns Hopkins School of Hygiene and Public Health.

MICHIGAN

Annual Clinic at Lansing.—The Ingham County Medical Society held its annual clinic at the Hotel Olds, Lansing, April 29. The following speakers were on the program:

- Dr. Francis E. Seneor, Chicago, Diagnosis and Treatment of Early Syphilis.
- Dr. Joseph L. Miller, Chicago, Treatment of Nephritis.
- Dr. Chevalier L. Jackson, Philadelphia, Postoperative Pulmonary Complications.
- Dr. Herbert W. Meyer, New York, Excursions into Fields of Surgery.
- Dr. Alfred A. Strauss, Chicago, Surgical Treatment of Peptic Ulcer.

Michigan Deaths from Automobile Accidents.—Automobiles were responsible for the deaths of 1,891 persons in Michigan in 1936, setting a new record for this cause of death, according to the state medical journal. This total gave a 13 per cent increase over the rate for 1935, when 1,667 persons were killed. More than 200 persons were killed during each of the last four months of the year, giving an average of at least seven deaths a day, while the highest monthly total, 223, was reported for December.

Annual Joint Concert.—The symphony orchestra and the glee club of the Wayne County Medical Society presented the following program at their annual joint concert in the main auditorium of the Detroit Institute of Art, April 26:

Georges Miquelle, Conducting

1. SAINT-SAENS Marche Heroique
2. DEBUSSY En Bateau
- DEBUSSY Minuet
- JARNEFELT Prælude
3. A.
 - (1) PRAYER OF THANKSGIVING.....Kremser
 - (2) THE BELLS OF ST. MARYS
 - B.
 - (1) OLE MAN RIVER.....Jerome Kern
 - (2) ON THE ROAD TO MANDALAY.....Oley Speaks

Marcus Kellerman—Director
Henry Brown, M.D.—Accompanist
4. SAINT-SAENS Danse Macabre
5. GOUNOD Ballet of Faust
6. GUION Alley Tunes
7. DVORAK Going Home
- GRIEG Landslighting

Glee Club and Orchestra

8. BERLIOZ Hungarian March

MINNESOTA

Personal.—Dr. Leo M. Maguire has been appointed in charge of the Fort Snelling Veterans' Administration Facility, succeeding Dr. Warren A. Colton, who has been transferred to Hampton, Va.

State Medical Election.—Dr. James M. Hayes, Minneapolis, was elected president of the Minnesota State Medical Association at its recent annual meeting in St. Paul, to take office Jan. 1, 1938. Drs. William R. McCarthy, St. Paul, and Baxter A. Smith, Crosby, were chosen vice presidents, and Drs. Edward A. Meyerding, St. Paul, and William H. Condit, Minneapolis, were reelected secretary and treasurer respectively. Dr. Meyerding has been secretary since 1924.

Society News.—Dr. Lewis M. Daniel, Minneapolis, addressed the Minnesota Academy of Medicine, recently, in Minneapolis, on "Pneumonic Pathology in the Upper Lung Fields." Dr. Alexander R. Colvin, St. Paul, presented a case report on twenty-eight years of surgical pathologic conditions in one patient. —The Hennepin County Medical Society was addressed in Minneapolis, March 31, by Dr. Albert M. Snell, Rochester, on "Diagnostic Problems in Diseases of the Liver and Biliary Tract." Dr. Henry S. Ruth, Philadelphia, spoke before the society, recently, on "Physiology of Anesthesia," and Charles H. Rogers, Sc.D., dean, University of Minnesota College of Pharmacy, "Interprofessional Relations—Is There a Policy?" —The Minneapolis Surgical Society was addressed, March 4, by Drs. Arthur A. Zierold on "Closure of Abdominal Wounds" and James M. Hayes, "Advisability of Informing School Children Concerning the Common Symptoms of Appendicitis."

NEW MEXICO

New State Health Officer.—Dr. Edwin B. Godfrey, San Bernardino, Calif., has been appointed state health officer of New Mexico to succeed Dr. John Rosslyn Earp, resigned. Dr. Godfrey was health officer of Santa Fe County for several years before his appointment to a similar position in San Bernardino County. He is 55 years old and was graduated from Miami Medical College, Cincinnati, in 1909. Dr. Earp became state director of health Jan. 1, 1930.

NEW YORK

State Medical Meeting at Rochester.—The one hundred and thirty-first annual meeting of the Medical Society of the State of New York will be held in Rochester, May 24-26, at the Rochester Chamber of Commerce. The scientific sessions will be held Tuesday and Wednesday, with section meetings in the mornings and general sessions in the afternoons. At the general session Tuesday a symposium on "The Relief of Intractable Pain" will be presented by Drs. James C. White, Boston, and Byron P. Stookey and Louis Casamajor, New York. Wednesday there will be a symposium on "The Blood" by Drs. William B. Castle, Boston; Cyrus C. Sturgis, Ann Arbor, Mich., and George H. Whipple, Rochester. Invited guests who will address the sections include:

Dr. Walter R. Campbell, Toronto, Uses of Protamine Zinc Insulin.
Dr. Norman F. Miller, Ann Arbor, Mich., Vesicovaginal Fistulae, Their Cause and Cure.
Dr. Louis K. Diamond, Boston, Iron Deficiency Anemia in Infants and Children.
James B. Hamilton, Ph.D., Albany, Cryptorchidism.

There will be two special sessions, one on regional and general anesthesia and one on physical therapy. In the first the speakers will be Drs. Orville C. King, Philadelphia; Emery A. Roventine, New York; Philip D. Woodbridge, Boston, and Wesley Bourne, Westmount, Que. In the second the speakers include Mr. Howard A. Carter, secretary of the Council on Physical Therapy, American Medical Association, Chicago; Drs. Karl Harpuder, New York; Jacob Gutman, Brooklyn; Richard Kovacs, New York, and George G. Martin, Buffalo. Entertainment includes a golf tournament Thursday afternoon at the Oak Hill Country Club, visits to Bausch and Lomb and the Eastman Kodak Company, and the annual banquet at the Chamber of Commerce Tuesday evening. The woman's auxiliary will hold its annual meeting under the presidency of Mrs. John L. Bauer, Brooklyn.

New York City

Sir Henry Dale to Give Harvey Lecture.—Sir Henry H. Dale, director of the National Institute for Medical Research, London, will deliver the eighth Harvey Society Lecture of the current series at the New York Academy of Medicine, May 20, on "Transmission of Nervous Effects by Acetylcholine."

Cornell Alumni Meeting.—The annual "Spring Day" meeting of the Cornell University Medical College Alumni Association was held April 29. Various departments were open to visitors during the day, and in the afternoon a special feature was a symposium on occupational diseases, with the following speakers:

Dr. Paul Reznikoff, Distinction Between Lead Absorption and Lead Poisoning.
Frederick B. Flinn, Ph.D., Obscure Symptoms in Lead Poisonings.
Dr. Niel E. Eckelberry, Acute Carbon Monoxide Poisoning.
Alexander O. Gettler, Ph.D., Importance of Carbon Monoxide Determinations in Forensic Medicine and Disability Claims.

Dr. Anthony J. Lauza presided at the symposium and Dr. William S. Ladd, dean of the medical school, summarized the discussion. A banquet was held at the Biltmore in the evening, at which the speakers were Drs. Livingston Farrand, who retires this year as president of the university; Charles G. Heyd, President of the American Medical Association, and Floyd S. Winslow, Rochester, president of the Medical Society of the State of New York.

One Year Study of Self-Inflicted Deaths.—A comprehensive one year study of self-inflicted deaths in the New York area has been begun by New York University College of Medicine under the direction of Dr. Nathaniel Ross, assistant clinical professor of psychiatry, and under the supervision of Dr. Karl M. Bowman, director of the psychiatric division of the department of hospitals, Dr. Gregory Zilboorg, director of research for the Committee for the Study of Suicide, and Dr. John Wyckoff, dean of the college. Dr. Ross and his staff will have at their command the clinical material at Bellevue Hospital, among whose patients are about 1,500 each year who have attempted to take their own lives. The research group will consist of about fifty psychiatrists and social work-

ers. The Committee for the Study of Suicide was organized in 1936 (THE JOURNAL, Feb. 29, 1936, p. 713) by a group of psychiatrists and other citizens to study the causes of and the contributing factors to suicide, to standardize methods for the treatment and prevention of suicidal drives in both the adult and the adolescent, and to discover any bearing that social crises such as depressions, wars and revolutions may have on suicidal trends. Dr. Gerald R. Jamieson is president; Dr. Henry Alsop Riley, vice president, and Dr. Zilboorg, secretary and director of research.

NORTH CAROLINA

Dr. McBrayer Resigns as State Secretary.—Dr. Louis B. McBrayer, Southern Pines, has resigned as secretary and treasurer of the Medical Society of the State of North Carolina and Dr. Thomas W. M. Long, Roanoke Rapids, has been appointed to succeed him. Dr. McBrayer has been made honorary secretary for life. A native of North Carolina, Dr. McBrayer graduated at the University of Louisville School of Medicine (1889). From 1901 to 1907 he was coroner of Buncombe County, from 1909 to 1914 health officer of Asheville. From 1914 to 1924 he was superintendent of the North Carolina State Sanatorium for the Treatment of Tuberculosis and was active in organizing the fight against tuberculosis in the state. He has been managing director of the North Carolina Tuberculosis Association since 1915. In 1925-1926 he was president of the Southern Conference on Tuberculosis and served as president of the state board of medical examiners from 1908 to 1914. Dr. McBrayer served as president of the state medical society at one time and has been secretary and treasurer for twenty-one years. In appreciation of his service, the society gave a dinner in his honor and presented him with a silver service. Speakers were Drs. Addison G. Brenizer, Charlotte; William H. Smith, Goldsboro; Grady G. Dixon, Ayden, and William M. Coppridge, Durham. Dr. Paul H. Ringer, Asheville, was toastmaster. Dr. Long is a native of North Carolina, took his medical degree at the Medical College of Virginia in 1908 and has practiced in Roanoke Rapids since 1910. He is a former president of the Halifax County Medical Society and of the fourth district society. He was a member of the state board of medical examiners from 1927 to 1932. He has served several terms in the state legislature and has been mayor of Roanoke Rapids.

NORTH DAKOTA

State Medical Meeting at Grand Forks.—The fiftieth annual session of the North Dakota State Medical Association will be held at Grand Forks, May 16-18, under the presidency of Dr. William A. Gerrish, Jamestown. Speakers will include:

Dr. Willard A. Wright, Williston, Treatment of Burns with Demonstration of Rapid Tanning Method by Natural Color Motion Pictures.
Dr. Donald C. Balfour, Rochester, Minn., Problems in the Diagnosis and Treatment of Gastro-Intestinal Hemorrhage.
Dr. Henning M. Berg, Bismarck, Cancer.
Dr. George A. Williamson, St. Paul, Minn., Fractures of the Upper Extremity.
Dr. Edward L. Tuohy, Duluth, Bone Marrow: Its Vital Importance to the Body.
Dr. William H. Long, Fargo, The Management of Nephritis.
Dr. Reuben H. Waldschmidt, Bismarck, Initial Care and Treatment of Accidental Injuries.
Dr. Robert D. Mussey, Rochester, Minn., Course, Conduct and Complications of Pregnancy Among Physicians' Wives.
Dr. John S. Lundy, Rochester, Minn., Anesthesia and Relief of Pain by the General Practitioner.
Dr. Kent E. Darrow, Fargo, Problems in the Diagnosis of Obstruction in the Bowel.
Dr. Reinhold O. Goehl, Grand Forks, Protamine Insulin.

Dr. Tuohy will be the principal speaker at the annual banquet Monday evening. The North Dakota Health Officers' Association will meet Tuesday afternoon. At a luncheon session, Dr. Calvin C. Applewhite, Chicago, U. S. Public Health Service, will discuss "Present Trends in Public Health Administration." In the afternoon the following speakers will participate in a symposium on venereal diseases: Drs. Harry G. Irvine, Minneapolis; Leonard W. Larson, Bismarck; Paul A. O'Leary, Rochester, Minn., and Kenneth F. Maxcy, Minneapolis. Monday afternoon Dr. Arthur E. Smith, Los Angeles, will address the North Dakota Academy of Ophthalmology and Otolaryngology on "Reconstructive and Plastic Oral Surgery."

PENNSYLVANIA

Personal.—Dr. Don Marshall, assistant professor of ophthalmology, University of Michigan Medical School, Ann Arbor, Mich., has been appointed director of the department of ophthalmology at the George F. Geisinger Memorial Hospital, Danville.—Dr. Persis R. S. Robbins, Bradford, has been appointed medical director of McKean County, succeeding Dr. James M. Rodgers, Smethport.—Dr. Jacques P. Gray,

assistant director of public safety, San Francisco, has been appointed health officer of Wilkes-Barre and manager of the Kirby Memorial Health Center.

Philadelphia

Dr. Lange Appointed Professor of Bacteriology.—Dr. Linda B. Lange, associate professor of bacteriology at Johns Hopkins University School of Hygiene and Public Health, has been appointed professor of bacteriology and immunology at the Woman's Medical College of Pennsylvania, effective in July. Dr. Lange was graduated from Johns Hopkins University School of Medicine in 1911, was fellow in pathology at the Rockefeller Institute for Medical Research, New York, 1912-1914, and pathologist at the Howard A. Kelly Hospital, Baltimore, 1914-1915. She was instructor in pathology at the University of Wisconsin Medical School, 1915-1916, and instructor in medicine at Johns Hopkins, 1916-1918.

Pittsburgh

Behavior Clinic in Criminal Courts.—A behavior clinic was established May 1 in the criminal courts of Allegheny County, with Dr. James M. Henninger, Woodville, as chief psychiatrist and Dr. Edward J. Carroll Jr. as assistant. The board of judges of the common pleas court, in announcing the appointments, made the following statement: "By means of this clinic there will be made available to the judges a detailed study that should materially help in the proper administration of justice. It will guarantee a better protection for the public interest and a more humane treatment of those who, by reason of physical or mental disability, should not be treated as the ordinary offender who is making war on society." Judges Ralph H. Smith, James H. Gray and William H. McNaugher make up a permanent committee in charge of the clinic, and the following physicians have been appointed to an advisory committee: Drs. Edward E. Mayer, George Wright and William Shapera. Dr. Henninger, who is the son of Dr. Charles H. Henninger, professor of psychiatry at the University of Pittsburgh School of Medicine, is a graduate of that school and served for two years on the staff of the Torrance State Hospital and a year as psychiatrist at the Allegheny County Home. Dr. Carroll is also a graduate of the University of Pittsburgh and is chief resident in psychiatry at St. Francis Hospital.

SOUTH DAKOTA

State Medical Meeting at Rapid City.—The annual meeting of the South Dakota State Medical Association will be held in Rapid City, May 24-26. Tuesday morning there will be clinics by the following guests: Drs. Albert M. Snell, Rochester, Minn., medical; Myron O. Henry, Minneapolis, orthopedic; Claude F. Dixon, Rochester, surgical, and George E. Robertson, Omaha, pediatric. Wednesday morning has been reserved for a trip to the Black Hills. The South Dakota Academy of Ophthalmology and Otolaryngology will meet, May 25, with the following speakers: Drs. Avery D. Prangen, Rochester, "Diagnosis and Treatment of Strabismus"; Joseph J. Hompes, Lincoln, Neb., "Moot Questions in Cataract Surgery," and Harry B. Stokes, Omaha, "Significance of Chronic Hoarseness."

TENNESSEE

Personal.—Dr. Marion S. Lombard, medical officer in charge of the U. S. Marine Hospital, Memphis, has been transferred to the Marine Hospital at Buffalo. Dr. Edwin H. Carnes, now at the hospital at Key West, Fla., will succeed Dr. Lombard.—Dr. Don C. Peterson, formerly of Austin, Texas, has been appointed health officer of Williamson County to succeed Dr. Robert Knox Galloway, Franklin, resigned.

State Medical Election.—Dr. George C. Williamson, Columbia, was elected president of the Tennessee State Medical Association at the annual meeting in Knoxville, April 13-15. Vice presidents were elected as follows: Drs. Andrew Smith, Knoxville, for East Tennessee; Jack Witherspoon, Nashville, for Middle Tennessee, and Fred K. West, Rossville, for West Tennessee. Dr. Harrison H. Shoulders, Nashville, was reelected secretary-editor.

VIRGINIA

Society News.—The Southwestern Virginia Medical Society held its spring meeting in Pulaski, April 8-9, with Dr. Emil Novak, Baltimore, as the guest speaker, on "The Endocrine Basis of Gynecological Organotherapy."—Dr. William B. Castle, Boston, addressed the Norfolk County Medical Society, Norfolk, March 15, on "Treatment of Anemia from the Standpoint of the General Practitioner."—At the quar-

terly meeting of the Southside Virginia Medical Society in Franklin, March 9, the speakers included Drs. Paul D. Camp, Richmond, on "Treatment of Congestive Heart Failure"; Otis L. Anderson, Richmond, "Problems of Early Syphilis," and Charles S. Dodd, Petersburg, "Glaucoma and Optic Atrophy."

WEST VIRGINIA

State Medical Meeting May 24-26.—The seventieth annual meeting of the West Virginia State Medical Association will be held in Clarksburg, May 24-26, with headquarters at the Stonewall Jackson Hotel. Guest speakers who will address general and sectional meetings are:

Dr. Dean D. Lewis, Baltimore, Surgical Problems of the Ductless Glands.
Dr. Horton R. Casparis, Nashville, Mental Health of Children; Pediatric Responsibility in Health Education.
Dr. Louis F. Bishop Jr., New York, Prevention of Heart Disease; Fugitive
Dr. Ralph " " Toxic Effects of Carbon Dioxide.
Dr. Norri " " Vaginal Bleeding in the Last Trimester of Pregnancy.
Dr. Moses Paulson, Baltimore, Newer Aspects of Gallbladder Disease of Practical Import.
Dr. John Huber Wagner, Pittsburgh, Treatment of Fractures.
Dr. deWayne G. Richey, Pittsburgh, Diagnosis and Treatment of Inflammatory Lesions of the Oropharynx.

Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will be the speaker at the annual banquet Wednesday, May 26, at the Waldo Hotel, on "Public Health Control of Syphilis." Several of the guest speakers will address special societies that will meet during the week. These include the West Virginia Heart Association, West Virginia Society of Obstetricians and Gynecologists and the West Virginia Society of Industrial Physicians and Surgeons. Dr. Lester Hollander, Pittsburgh, will be a guest of the latter society, speaking on "Diagnosis and Treatment of Industrial Dermatoses." Dr. Oscar B. Biern, Huntington, will deliver the annual oration in medicine, on "The Value of the Sedimentation Rate in Medicine"; Dr. Benjamin H. Swint, Charleston, the oration in surgery, on "Pain in Abdominal Crisis." Dr. William S. Fulton, Wheeling, will deliver his official address Tuesday evening. The woman's auxiliary will hold its thirteenth annual meeting during the association's meeting. The auxiliary has arranged an exhibit of physicians' hobbies, the first the association has had.

WISCONSIN

Personal.—Dr. Rollin D. Thompson, superintendent of the Wisconsin State Sanatorium, Statesan, recently resigned to become superintendent of a new hospital now nearing completion at Orlando, Fla., it is reported.—Dr. Carl N. Neupert, Janesville, has been appointed assistant state health officer. He succeeds Dr. Ethan B. Pfefferkorn, Oshkosh, who resigned to reenter private practice.—Dr. Robert L. MacCornack, Whitehall, has been appointed a member of the state board of health.—Dr. Willard M. Sonnenburg was elected mayor of Sheboygan for his third term April 6.

Society News.—Dr. Solon Marx White, Minneapolis, among others, addressed the Eau Claire-Dunn-Pepin County Medical Society, recently, in Eau Claire, on "Diagnosis and Management of Acute Myocardial Damage of Vascular Order."—Dr. John E. Gonce Jr., Madison, addressed the Fond du Lac County Medical Society, Fond du Lac, recently, on "Use of Various Serums and Vaccines in the Diagnosis and Treatment of Infectious Diseases."—Dr. Joseph Brennemann, Chicago, gave the Lippitt Memorial Lecture of the Milwaukee County Medical Society, Milwaukee, March 12, on acute abdominal conditions in children.

PHILIPPINE ISLANDS

Society News.—Speakers at a meeting of the Manila Medical Society, January 12, were Drs. Miguel Canizares, on surgery of pulmonary tuberculosis; Walfrido de Leon and Alfredo Pio de Roda, tropical typhus in the Philippines.—Dr. Mariano B. Lara, among others, addressed the Culion Medical Society, January 24, on pseudohemagglutination in leprosy and certain other diseases and its relation to erythrocyte sedimentation.

Personal.—Dr. Leoncio Lopez-Rizal, chief of the administrative division of the bureau of health of the Philippines, retired February 10 after twenty-five years in the government service.—Dr. Antonio G. Sison, recently named dean of the University of the Philippines College of Medicine, has been appointed director also of the school of hygiene and public health. Dr. Hilario Lara was made assistant director. Dr. Carmelo M. Reyes has been appointed chief of clinics and head of the department of gynecology, and Dr. Jose Albert head of a newly created department of clinical studies and research.

GENERAL

Meetings in Atlantic City.—The annual meeting of the Medical Women's National Association will be at the Chalfonte, Atlantic City, June 6-8. Among the speakers will be Drs. Elizabeth Mason Hohl, Los Angeles, on the "Campaign Against Cancer," and Bertha Van Hoosen, Chicago, on "Maternal Mortality." Dr. Mabel M. Akin, Portland, Ore., will be installed as president. —The board of chancellors of the American College of Radiology will hold its regular annual meeting in Atlantic City, June 8, at Haddon Hall. Dr. Edward L. Jenkinson, 2561 North Clark Street, Chicago, is executive secretary of the college. —Phi Alpha Sigma Medical Fraternity will hold a luncheon meeting in the Fountain Room of the Shelbourne Hotel, Atlantic City, June 9.

American Laryngological Association.—The fifty-ninth annual congress of the American Laryngological Association will be held at the Marlborough-Blenheim, Atlantic City, May 31-June 2. The following, among other speakers, will be on the program:

Dr. Chevalier Jackson, Philadelphia, Benign Tumors of the Larynx.
Dr. Thomas E. Carmody, Denver, Cysts of the Mandible.
Dr. George M. Coates, Philadelphia, Cholesteatoma of the Frontal Sinus.
Dr. Ralph Albert Fenton and Olof Larsell, Ph.D., Portland, Ore., The Defense Mechanisms of the Upper Respiratory Tract.
Dr. John D. Kernan, New York, Use of Helium Oxygen Therapy in Obstructive Lesions of the Air Passages.

The president, Dr. William B. Chamberlin, Cleveland, and his wife will hold an informal reception Monday evening, and the annual banquet will be given Tuesday evening.

Meeting of Otological Society.—The American Otological Society will hold its seventieth annual meeting at the Lido Country Club, Long Beach, Long Island, N. Y., May 27-28. Most of the meeting will be devoted to a symposium on the neural mechanism of hearing, and speakers will include Drs. Moses H. Lurie and Hallowell Davis, Boston; Albert C. Furstenberg, Ann Arbor, Mich.; Samuel T. Orton, New York; Douglas MacFarlan, Philadelphia; Hermon Marshall Taylor, Jacksonville, Fla., and Samuel J. Kopetzky, New York. Dr. Edmund P. Fowler, New York, will deliver his presidential address Thursday afternoon on "The Diagnosis of Diseases of the Neural Mechanism of Hearing by the Aid of Sounds Well Above Threshold." Friday afternoon the speakers will include Dr. Lee W. Dean, Dr. John S. Agar and Lloyd D. Linton, B.S., St. Louis, on "The Effect of Allergic Conditions on the Ear," and Dr. Page Northington, New York, "The Induced Nystagmus After Peripheral Vestibular Lesions in Monkeys."

American Board of Surgery Organized.—In answer to the widespread demand for an agency that will attempt to certify competent surgeons, the American Board of Surgery has recently been organized. This board is a member of the Advisory Board of Medical Specialties, which includes all the boards of certification for the different medical specialties that have been already organized. Since boards were in existence for the certification of practitioners of some of the surgical specialties such as ophthalmology, otolaryngology, obstetrics and gynecology, genito-urinary surgery and orthopedic surgery it is expected that the American Board of Surgery will be responsible for the certification of general surgeons as well as those practicing in the remaining specialized subdivisions of surgery.

Acting on the invitation of the American Surgical Association, the following surgical societies cooperated in the creation of the American Board of Surgery: the American Surgical Association, the Section on Surgery, General and Abdominal, of the American Medical Association, the American College of Surgeons, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society. The first three of these bodies, which are national in scope, have three representatives on the board. All the other societies have one representative each. The representatives of the cooperating societies are nominated by the society which they represent and on approval of the board shall become members of it. The term of membership on the board will be six years. The following were chosen to represent the cooperating surgical societies:

Dr. Evarts A. Graham, Dr. Arthur W. Elting and Dr. Allen O. Whipple, representing the American Surgical Association.
Dr. Donald Guthrie, Dr. Edwin R. Schmidt and Dr. Harvey B. Stone, representing the American College of Surgeons.
Dr. Fred W. Rankin, Dr. Howard M. Clute and Dr. J. Stewart Rodman, representing the Section on Surgery, General and Abdominal, of the American Medical Association.
Dr. Philemon E. Truesdale, representing the New England Surgical Society.
Dr. Thomas Orr, representing the Western Surgical Association.
Dr. Robert Payne, representing the Southern Surgical Association.
Dr. Thomas Joyce, representing the Pacific Coast Surgical Association.
The following officers were elected: chairman, Dr. Evarts A. Graham; vice chairman, Dr. Allen O. Whipple; secretary-treasurer, Dr. J. Stewart Rodman.

Two groups of candidates are recognized for qualification by the board: (a) those who have already amply demonstrated their fitness as trained specialists in surgery, and (b) those who, having met the general and special requirements exacted by the board, successfully pass its qualifying examination.

The first of these groups, the Founders Group, on invitation by the board will be chosen from (1) professors and associate professors of surgery in approved medical schools in the United States and Canada, (2) those who for fifteen years prior to the board's organization have limited their practice to surgery, and (3) members of the American Surgical Association, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society, who were in good standing Jan. 9, 1937.

All applications for the Founders Group must be received within two years of the board's organization, Jan. 9, 1937. No candidates will be considered after that date.

Requirements for those to be qualified by examination will be: 1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association or graduation from an approved foreign school. 2. Completion of an internship of not less than one year in a hospital approved by the same council, or its equivalent in the opinion of the board. 3. Special training: A further period of graduate work of not less than three years devoted to surgery taken in a recognized graduate school of medicine or in a hospital or under the sponsorship accredited by the American Board of Surgery for the training of surgeons. This period of special training shall be of such character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to clinical surgery will be required in the examination. Adequate operative experience in which the candidate has assumed the whole responsibility will be required. An additional period of not less than two years of study or practice in surgery. 4. The candidate must present to the board sufficient evidence of good moral character as to justify it in the belief that he will not engage in fee splitting and other dishonest practices.

The qualifying examination will be divided into two parts: part I, written, and part II, clinical, bedside and practical. The written part, part I, will concern itself with general surgical problems and with the clinical application of the basic sciences of surgery to these problems. This examination will cover a period of three hours each and will be held simultaneously in as many centers as are necessary to accommodate the number of applicants who are eligible. Part II is entirely oral and will also concern itself, in the main, with general surgery and, as stated for part I, clinical application of the basic sciences to the clinical problem represented. In addition to this, in part II an examination will be given to test the candidate's knowledge of operative surgery, x-ray plate interpretation and the principles and application of surgical anesthesia. This examination will be held in as many centers as the board may determine necessary to accommodate the eligible candidates. Reexaminations will be allowed, provided one year shall elapse between examinations.

The fee for group A, the Founders Group, shall be \$25. The fee for group B shall be \$75, payable as follows: \$5 for registration fee, which shall be returned if the candidate is not accepted for examination; \$20 for part I, and \$50 for part II. The same fee will be required for each reexamination. Once the candidate has become qualified, he will have no further financial obligation to the board.

The board will hold its first examination (part I, written) Sept. 20, 1937. All inquiries concerning applications for this examination should be received by the secretary's office promptly.

Requests for booklets of information, application blanks and other information should be addressed to the secretary, Dr. J. Stewart Rodman, 225 South Fifteenth Street, Philadelphia.

CORRECTIONS

Births in Milwaukee General Hospital.—In the Hospital Number of THE JOURNAL, March 27, page 1118, the number of births in the Milwaukee General Hospital, Milwaukee, should have been reported as 431 instead of 43.

Bovine Tubercle Bacilli and Guinea-Pigs.—In the Paris letter in THE JOURNAL, February 27, page 739, it was said that the guinea-pig is not susceptible to the bovine type of tubercle bacillus. According to a standard textbook on bacteriology, guinea-pigs inoculated with the bovine type of tubercle bacillus die more quickly and show more extensive lesions than those infected with human bacilli. The bovine type is said to be more virulent for all the ordinary laboratory animals than is the human.

Government Services

SPECIAL ARTICLE

MEETINGS OF ADVISORY COMMITTEES ON MATERNAL AND CHILD WEL- FARE SERVICES UNDER THE SOCIAL SECURITY ACT

The General Advisory Committee on Maternal and Child Welfare Services under the Social Security Act met in Washington, April 7 and 8, to consider progress reports and problems concerning content of programs and policies with respect to the administration of title V of the act. Following an opening session at which Miss Lenroot, chief of the Children's Bureau, gave a short general report of progress, the members of the General Advisory Committee met with the members of four special committees on maternal and child health, services for crippled children, child welfare services, and participation by the public. In each of the special committees, progress reports were presented by the directors of the divisions administering the three parts of the act. Following a full discussion, recommendations were made by each committee to the General Advisory Committee. The reports and recommendations of the special committees can be summarized as follows:

ADVISORY COMMITTEE ON MATERNAL AND CHILD HEALTH

The Committee on Maternal and Child Health received and unanimously adopted recommendations made by the Subcommittee on Maternal Welfare with respect to an extension of the program under title V, part 1, of the Social Security Act and further recommended the submission of the report to the chief of the Children's Bureau for the purpose of taking the steps necessary for the accomplishment of the purposes outlined.

The recommendations of the Subcommittee on Maternal Welfare cover two special aspects of the program; namely, (1) increased and improved maternity care and care of the newborn and (2) a program of training in these fields for physicians and nurses. The recommendations are as follows:

1. Extension of the maternal and child health work begun in 1935 through federal cooperation with the states under the Social Security Act appears to be urgently needed. This requires appropriation of public funds for maternal care, medical and nursing, for all women in need of such care, considering need as including not alone economic but also medical needs and lack or inadequacy of existing facilities.

This extension should include not only provision of increased resources for actual maternal care, including care given locally by general practitioners and nurses, but also expert obstetric and pediatric consultation service in areas where such is not available and hospitalization of emergency and other selected cases. The establishment of such a program would involve adequate provision for three types of service:

- (a) Care in the home at delivery and during the antepartum and postpartum periods by a qualified physician aided by a public health nurse trained and experienced in maternal care.

- (b) Delivery care in approved or acceptable hospitals, provided with adequate obstetric and neonatal services and facilities equal to all emergency or complicated cases, for any woman who because of social, medical or economic reasons, or because of inaccessibility of skilled care should be cared for in a hospital.

- (c) Consultation service by obstetricians and pediatricians to aid general practitioners in their care of mothers and infants.

In the development of such an extended program, the right of the patient to select her own physician should be preserved.

2. It is the opinion of this committee that a center or centers of postgraduate education should be established to teach urban and rural practitioners of medicine and nurses the fundamental principles of complete maternal and infant care.

Having accepted the principle of providing short intramural courses in obstetrics and care of the new-born infant for general practitioners, the committee recommends:

- (a) That such training positions carry maintenance and necessary traveling expenses.

- (b) That intramural postgraduate instruction be a special assignment of members of the teaching staffs of medical schools.

3. The committee recognizes the necessity and desirability of cooperation with the national, state and local medical societies in the working out of any plan.

As reasons for the importance of these resolutions on the extension of maternity care and care of the new-born, the report of the Advisory Committee on Maternal and Child Health Services states:

The progress that has been made in the field of maternal and child health can be traced by the mortality rates. The maternal mortality rate has shown but little appreciable decline in this country. Whereas infant

mortality has been reduced almost one half during the first year of life, this reduction has occurred almost entirely after the first month. The mortality rates remain practically the same for the first week and for the first month of life.

Only by available and adequate care for the mother during the pregnancy cycle, especially at time of delivery, can the death rate for mother and child be lowered. It is therefore essential that, to bring any further reduction in maternal as well as infant death rates, further development of the program is necessary.

In addition, the Committee on Maternal and Child Health Services adopted the following resolutions for submission to the General Advisory Committee on Maternal and Child Welfare Services:

1. That a special committee be appointed to consider problems in the field of health education.

2. That it would be desirable to have a few complete demonstrations developing and applying available knowledge in the field of nutrition and to use these centers not only as demonstrations but also as areas where training in nutrition might be available to those interested. This should be a coordinated effort of educational, health, welfare and agricultural agencies.

3. That the Children's Bureau appoint an advisory committee on research problems in administration of maternal and child health programs.

In considering the work of the maternal and child health division of the Children's Bureau as reported by the director of the division, the Advisory Committee on Maternal and Child Health Services emphasized the desirability in future planning of having the state bear at least one half the administrative expense of the state maternal and child health program, in order to make an increased amount of federal funds available for local areas. Continued cooperation with the medical profession was endorsed and the importance of solving the problem of cooperation with professional and lay groups was stressed, especially in connection with several states where the success of the program appears to be jeopardized by failure to use the advisory committees.

The committee discussed at some length the importance of studies and investigations of various phases of the maternal and child health program, as, for instance, dental hygiene, nutrition, health education and mental hygiene.

ADVISORY COMMITTEE ON SERVICES FOR CRIPPLED CHILDREN

The meeting of the Committee on Services for Crippled Children, April 7, was the third one since the passage of the Social Security Act. Following the report by the director of the division, the committee was broken up into two groups to consider (1) problems of medical and hospital care and (2) state administrative procedures. The report of the committee as a whole may be summarized as follows:

The committee noted with satisfaction that every state and territory except one has designated an official agency.

The committee reaffirmed and amplified its previous recommendations concerning desirable qualifications of surgeons and other trained personnel to be employed by official agencies. The statement of qualifications and functions of physical therapy technicians prepared for the use of state agencies and approved by the Council on Medical Education and Hospitals of the American Medical Association and the American Physiotherapy Association was accepted as adequate. Reports of progress were given concerning the training of public health nurses and medical social workers to be employed in state programs. The committee reaffirmed its previously stated position regarding the desirability of a definite plan for the continuous education of the state staff as well as improving the qualifications of incompletely trained personnel already employed.

The preliminary studies by the staff of the Children's Bureau concerning fee schedules, hospital rates and other charges were examined by the committee and approved with suggestions as to future studies.

The registration of hospitals by the American Medical Association was recommended as an additional safeguard to desirable standards formerly proposed by this committee.

The committee urged that the Children's Bureau assist state agencies in reviewing the type of care given to individual children in hospitals and reaffirmed its recommendation of the desirability of a flat per diem ward rate exclusive of professional fees and charges for appliances.

The extension of convalescent facilities and after-care services in reducing the duration of hospital care was recommended, and reports were received with respect to standards for convalescent and foster-home care.

The committee reemphasized the need for the establishment and continuous maintenance of an adequate state register of crippled children.

The plan for the classification of crippling conditions to be used by the states was discussed and suggestions made with respect to forms for reporting. The plan proposed is based on the National Conference on Nomenclature of Diseases.

The importance of working agreements with other public and private agencies engaged in providing related services to crippled children in the attainment of satisfactory adjustments leading to social and economic self maintenance was recognized.

The use of state advisory committees as interpretative groups serving the state agency and the community was urged. The use of small sub-

committees serving as advisory groups on technical problems was also recommended.

The committee made additional suggestions for future studies to be conducted by the Children's Bureau, which it was hoped would lead to improvement of services.

In closing, the committee expressed its confidence in the methods of administration used and the policies which have been developed by the Children's Bureau in its services for crippled children.

ADVISORY COMMITTEE ON COMMUNITY CHILD WELFARE SERVICES

The Committee on Community Child Welfare Services met with the staff of the Child Welfare Division of the Children's Bureau on April 7 to hear reports of progress in development of state services for the encouragement and assistance of adequate methods of community welfare organization in areas predominantly rural and other areas of special need and in the development of actual child welfare service programs in such areas.

Representatives of professional and lay groups in the various states have assisted in the development of the initial stages of the child welfare service program. During the next period there is continuing need for such participation. One method is through the use of state and local committees.

The consensus among the members of the advisory committee with regard to the development of such committees was as follows:

1. An informed interest on the part of citizens is essential to insure the development and maintenance of the public program.
2. The methods by which administrators can best reach the public will vary from state to state and from community to community, and may be through formally organized committees or through more informal channels.
3. State committees may be of two kinds:
 - (a) An informal group of technical advisers on whom the administrator calls for advice concerning the professional aspects of the program. This group may be small or large and is not limited as to term of service.
 - (b) A state citizens' committee for the purpose of interpretation and support. Such a committee may not be formally appointed by the department concerned, although its development may be indirectly stimulated by the department.
4. In local areas it is the primary responsibility of the child welfare worker to develop community organization and interest along with technical child welfare services to individual clients. Local groups should be interested in the program on the basis of specific services which they may perform in connection with it. As an outgrowth of interest in such service, certain citizens may be chosen to serve as members of a more formal committee, if that seems desirable.

The Advisory Committee also heard reports of a special committee on training and personnel, which is working with both the Children's Bureau and the Public Assistance Division of the Social Security Board.

SUBCOMMITTEE ON PARTICIPATION OF THE PUBLIC

A subcommittee, which included the members of the General Advisory Committee on Maternal and Child Welfare Services representing citizens' organizations, discussed many problems in the maternal and child welfare programs under the Social Security Act. In its report to the General Advisory Committee, the subcommittee recognized that the program for maternal and child welfare services is dependent on increasing understanding on the part of the public so that adequate support may be given, quality of service maintained and activities extended to reach new groups and new areas. The committee asked the Children's Bureau to make available to the state administrative agencies suggestions as to the composition, use and functions of advisory committees. It was the sense of the committee that, in the appointment of working advisory committees in the states, organizations be selected for representation because of their special activity in the particular field and that all organizations concerned with the various programs be called in conference from time to time by the state agencies concerned. The committee suggested that the various state organizations request the state agencies to issue at stated intervals brief summaries of activities for their use in informing their members of the progress that is being made in the maternal and child welfare programs.

The recommendations of these four special committees were received and endorsed by the General Advisory Committee at its meeting, April 8. The recommendation with respect to the extension of the maternal and child health program under title V, part 1, of the act to include resources for increased and improved maternity care and care of the new-born and a program of training for physicians and nurses was given special consideration and unanimously adopted by the committee.

RECOMMENDATIONS OF THE CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS

The Conference of State and Territorial Health Officers, meeting with the Children's Bureau April 9, unanimously adopted the following report of a joint meeting of the Committee on Maternal and Child Health of the State and Territorial Health Officers and the Child Hygiene Committee of the State and Provincial Health Authorities of North America:

The conference, at its last annual meeting, adopted the committee's recommendations relating to a revised plan for development of maternal and child health programs, local programs, health services, state-wide program, and federal participation with states.

At a joint meeting April 4 the committees considered other timely and necessary steps in our programs of maternal and child health activities and the following recommendations were unanimously adopted:

1. That the Children's Bureau prepare and send a questionnaire relating to present facilities and resources for maternal and child health to the states and territories.
2. That the medical schools of the country be encouraged to provide more adequate instruction in maternal and child care through their obstetric and pediatric departments in order that their graduates may be better prepared to practice preventive as well as curative medicine and render service of such a character that the maternal death rate would be lowered and that further reduction would be made in the infant death rate, and that the assistance and cooperation of the Council on Medical Education and Hospitals of the American Medical Association be enlisted in the furtherance and promotion of this program of better instruction in these schools.
3. That it is necessary to extend the maternal and child health work now being conducted in the states and territories. For the purposes of developing sound procedures in this field, the joint committee recommends that (1) resources be made available so that qualified local practitioners of medicine and qualified nurses be made available for all aspects of maternal care to those women who are unable to secure this service otherwise, and (2) necessary consultation service and emergency hospitalization for these women should also be provided.
- Medical leadership is both desirable and necessary, and the right of the patient to choose her own physician should be recognized.
4. That the facilities for postgraduate education for physicians and nurses be extended and that in cooperation with the state medical societies an analysis be made of the causes of maternal deaths in order to demonstrate the need for better obstetric practice.

A report on the progress of the crippled children's program was presented to the Conference of State and Territorial Health Officers by the director of the crippled children's division of the Children's Bureau. The previous recommendations of the State and Territorial Health Officers with regard to services for crippled children were reviewed and the Children's Bureau was requested to prepare a registration card for the optional use of states to aid in developing a uniform system of registration for crippled children.

The members of the Child Hygiene Committee are Drs. Felix J. Underwood, Mississippi, chairman; T. F. Abercrombie, Georgia; P. H. Bartholomew, Nebraska; T. P. Burroughs, New Hampshire; P. S. Campbell, Nova Scotia; G. H. Coombs, Maine; J. D. Dunshee, Idaho; W. B. Grayson, Arkansas; V. K. Harvey, Indiana; Bernard T. McGhie, Ontario; E. G. Morales, Puerto Rico; F. E. Trotter, Hawaii, and Maysil M. Williams, North Dakota.

The members of the Committee on Maternal and Child Health are Drs. Felix J. Underwood, Mississippi, chairman; T. F. Abercrombie, Georgia; Earle G. Brown, Kansas; Henry D. Chadwick, Massachusetts; E. R. Coffey, Washington; J. Rosslyn Earp, New Mexico; R. C. Cleere, Colorado; V. K. Harvey, Indiana, and R. H. Riley, Maryland.

Health in Civilian Conservation Corps

The health of the Civilian Conservation Corps was satisfactory during the past year, according to the annual report of the surgeon general of the U. S. Army for the calendar year 1935 and the fiscal year ended June 30, 1936. The admission rate is higher than that of the regular army, but this is to be expected because of the youth and inexperience of the enrollees, their susceptibility to measles and mumps and the nature of the work in which they are engaged. The mean strength of the corps was about 394,000. There were but 102 cases of typhoid during the calendar year and many of these persons were probably infected before enrolment. There were 360 cases of tuberculosis. By means of the rapid x-ray examination of the chests of applicants for enrolment, recently inaugurated by the army, a rate of 7 per thousand in white men under 30 years of age and 8 per thousand in Negroes was recorded among a group of 7,000 men examined.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 17, 1937.

The Nutrition of the Nation

In 1935 the minister of health appointed a committee to investigate the diet of the people and to report on any changes that appear desirable in the light of modern advances in the knowledge of nutrition. The committee has now published a report in which it states that this is "the first occasion in history that a comprehensive survey, statistical and physiologic, of the diet of a whole nation has been set on foot by any government." It regards the consumption of a sufficient quantity of milk as the key to proper nutrition. The desirable amount for children is from 1 to 2 pints daily, for expectant or nursing mothers about 2 pints, and for adults about half a pint. Our present national consumption of milk is not half what would correspond to these amounts. "No other single measure would do more to improve the health, development and resistance to disease of the rising generation than a largely increased consumption of safe milk, especially by mothers, children and adolescents." The committee says that recent advances in the science of nutrition have shown that improvements in health and physique can be attained by consumption of adequate amounts of the protective foods. The progressive application of this knowledge has already contributed to general improvement in health and to decline in mortality and in the incidence of deficiency diseases, such as rickets. The greater availability of butter, cheese and fruit and the increased attention given to the nutrition of mothers and children have also played a part. But there is much room for further improvement.

The national diet contains sufficient energy-giving foods for the whole population, and all except a small fraction of the population is obtaining the full amount of calories it requires. It has been computed that the national food supply per annum contains 55,700 thousand million calories, or, allowing for a wastage of 10 per cent, 50,100 thousand million calories, as compared with the estimated net requirements for the population of 44,300 thousand million calories on the basis of the report of the League of Nations Health Organization. The consumption of fat has largely increased in recent years, which suggests that there is no aggregate deficiency, though there may be some deficiency in the diet of the poorest. No shortage of protein has been revealed, but not all protein is of the same nutritional value; the consumption of protein of high nutritional value (meat, fish and dairy products) rises with income. It seems that the national consumption of fruit and vegetables is below the requirements for optimal nutrition. The committee agrees with the technical commission of the League of Nations that sea fish is particularly valuable as a source of good protein, of iodine and other minerals, that herring and mackerel are particularly rich in vitamins A and D, and that the consumption of potatoes (now about 56 ounces a head weekly) should be increased so as to replace some of the sugar and highly milled cereals in ordinary diets.

It is proposed to investigate further the distribution of the national income by income groups, family budget material, and quantitative dietary studies.

Rules for Resident Medical Officers of Hospitals

The British Medical Association has issued a statement of the principles that should guide hospitals in the employment of junior resident medical officers.

1. The junior resident medical officers should devote their whole time to the service of the hospital. 2. Their duties should

include the admission and discharge of patients in accordance with the wishes of the responsible medical officer in charge of the case. 3. They may be required to give lectures to nurses or to examine and treat nurses, and in serious cases they should report to the responsible medical officer. 4. They should as soon as possible notify him of the admission of urgent and important cases and of any serious change in the condition of any case. 5. They should not permit any patient, prescription paper or notes to be examined by any one without the sanction of the responsible medical officer and should not furnish any one unconnected with a patient with any information respecting the case without the sanction of the responsible medical officer and the consent of the patient. 6. They should have definitely prescribed periods off duty; for example, two half days a week after 2 p. m. and alternate Saturdays after 11 a. m. They should have a two weeks holiday for every six months of completed service. 7. The responsibility for giving certificates and medical reports and their entitlement or nonentitlement to retain fees for them should be clearly defined in the hospital rules.

Cooperation Between Medical Schools and Psychotherapists Desirable

In a communication to the *Times*, Sir Walter Langdon-Brown, emeritus professor of physic in the University of Cambridge, supports a suggestion advocating closer cooperation between the medical schools and psychotherapists, which he has been advocating for several years. He points out that the ordinary medical student receives more instruction in certifiable mental disease than in the earlier and more amenable forms of such troubles. Such teaching has had from force of circumstances to be confined to outpatient clinics held by psychiatrists, who must feel that their opportunities are restricted and inadequate. Yet as a member of three separate bodies concerned with the revision of the medical curriculum Sir Walter can testify that the urgent need for greater opportunities is freely recognized. He holds that it is of the first importance that from the beginning of his clinical work every medical student should recognize not only the symptoms of "nervous breakdown" but the fact that every illness has its psychologic side. This can be brought about only by the psychiatric department forming an integral part of the general hospital. There can be no doubt as to the benefits such a scheme would bring to national health and happiness.

Charles Coley Choyce

Prof. Charles Coley Choyce, the editor of the well known *System of Surgery*, who had recently retired from the post of director of the surgical professorial unit of University College Hospital, London, has died at the age of 61 years. Born in Auckland, New Zealand, he graduated B.Sc. in the university of that country and then went to the University of Edinburgh, where he graduated M.B., Ch.B., in 1901. In 1905 he obtained the F.R.C.S. of England and settled in London, where after holding various junior surgical appointments he was elected surgeon to the Seamen's and Great Northern hospitals. He soon established a reputation as a teacher of surgery and in 1911 produced his *System of Surgery* in three volumes, which was an immediate success. He had all the qualities for such an undertaking—a sound knowledge of surgery, great teaching ability, a good command of English and tact for the management of a corps of eminent contributors. On the outbreak of the war he joined the army and for nearly two years was in charge of the surgical division of the Nineteenth General Hospital. In 1917-1918 he was consulting surgeon to the Egyptian Expeditionary Force with the rank of colonel. After the armistice he was appointed director of the newly formed surgical unit at University College Hospital and professor of surgery in the University of London.

PARIS

(From Our Regular Correspondent)

April 17, 1937.

Diagnosis and Treatment of Cerebral Injuries

At the March 3 meeting of the Académie de chirurgie Dr. Clovis Vincent read a paper on the diagnosis and treatment of cerebral injuries. Dr. Vincent, up to about ten years ago, was one of the leading neurologists in Paris. Since that time he has devoted himself to neurosurgery. His idea was to study the effects of cerebral injury in noting the clinical course following operations for cerebral tumors. By observing from hour to hour the postoperative course, one learns to know when unfavorable symptoms appear. Some patients were reoperated on and thus it was possible to study in the living a number of lesions that may cause death. The most frequent of these are extradural hematoma, serous meningitis, acute ventricular effusion and brain collapse. These conditions may occur singly or associated, with predominance of one lesion. Among the phenomena that surgeons observe as a postoperative complication, three are to be especially borne in mind: cerebral edema, arterial hypertension with cerebral vasodilatation, and acute pulmonary edema. Lesions of the brain stem are much more likely to end fatally than those of the cerebral hemispheres. A mechanism is present, according to Vincent, in the wall of the third ventricle the stimulation or paralysis of which is followed by cerebral edema, especially of the frontal lobe. A clinical observation was cited to confirm this opinion.

There exists in the bulb near the nucleus of origin of the tenth pair of cranial nerves a mechanism that appears, when traumatized, to give rise to generalized hypertension, intense cerebral vasodilatation and acute pulmonary edema. This observation was made by Vincent in operating on the posterior fossa of the skull in several cases of tumor of the cerebellum.

Vomiting, polyuria with polydipsia and often glycosuria as well as a more or less deep sleep were observed in operating near the third ventricle. Patients do not die as the result alone of injury to the centers that govern life directly but also from the dysfunction of various mechanisms which control the systemic as well as interstitial circulation of the brain, which in turn regulates the secretion of the cerebrospinal fluid, consciousness and also the functions of the liver, pancreas and adrenals.

Vincent does not believe that any difference exists between changes due to operative interventions and those following ordinary trauma to the skull and brain. Hence the treatment of the latter, so far as the cranial contents are concerned, can be deduced from observations made in cases in which operations have been performed for nontraumatic lesions, such as tumors, as follows: If the patient is conscious and there are no localizing symptoms, nothing should be done except to put the patient to bed and watch closely, as no one can foretell when serious symptoms may appear. If the patient is comatose when first seen, the gravity of the symptoms, the time elapsed since the accident and the sequence of appearance of the symptoms must be the deciding factors. If the injury is a recent one and the general condition indicates such serious damage to vital nerve centers that the patient can live but a few days, it is advisable to do nothing. If the injury is a recent one and the patient is in a serious condition but there is a history of a free interval without any symptoms, absolute or relative, operation is indicated. If the patient is comatose but the essential vital functions are normal or nearly so, there is no immediate danger and one can wait, meanwhile watching for any symptoms that might call for operative intervention. Such surveillance includes the constant presence of a nurse at the bedside to note, from hour to hour, the pulse, respiration and temperature. Any changes in the ability of the patient to swallow are especially to be noted, as well as loss of con-

sciousness, convulsions, paralysis and urinary incontinence. The attending surgeon himself ought to see the patient at least every six hours. If convulsions of the jacksonian type, followed by a rapidly progressive hemiplegia, appear, these are definite indications for operation. Such symptoms are but rarely observed, so that the more important question is the degree of involvement of the vital centers.

Following a review of the different types of consciousness, Vincent stated that it is the degree of automatic and instinctive consciousness, as well as the manner in which the patient acts during the second stage of deglutition, which enables the surgeon to judge the condition. The respiration can be changed both in quality and in rhythm. The progressive slowing of the pulse rate, as shown on a relatively long curve on the chart, is of much importance. An isolated rise of temperature is of less value than a steadily increasing rise. Unilateral dilatation of the pupil does not necessarily indicate the side on which a hematoma is located. One of the best signs of compression is papillary stasis. Much importance should be attached to the gradual appearance of mental confusion ending in coma. Cerebral edema, developing slowly, also gives rise to progressive inability to swallow, as well as to disturbances of respiration and pulse rate. Cerebral edema is the most common complication of skull fractures. It can be responsible for the coma, even when there is no hemorrhage, but it frequently accompanies these. It can appear so acutely as to cause death within the first twenty-four hours. Usually it appears slowly, preceded by a lucid interval, as in cases of subdural or extradural hematoma.

Owing to the difficulty of diagnosis in certain cases, the author endorsed the suggestion of Petit-Dutaillis, of ventricular puncture during exploration. The information yielded by lumbar puncture is far inferior to that following the use of the Petit-Dutaillis method. In conjunction with the latter, Vincent advises the use of four trephine openings (two frontal and two temporal), which permits obtaining a larger field for inspection of the brain and its coverings as to the presence of hematomas.

TREATMENT OF SKULL INJURIES

Lumbar puncture and intravenous injections of hypotonic or hypertonic solutions are too frequently given without definite indications having been established. In head injuries, lumbar puncture may be a good method of treatment for slight extra-arachnoid meningeal hemorrhages predominantly located at the base of the brain. It is indicated also in diffuse serous meningitis if one is sure that it exists. But lumbar puncture cannot be regarded as a treatment of hematoma, of encysted serous meningitis or of cerebral collapse. Lumbar puncture cannot be considered as adequate when employed alone in edema of the brain. Following an operation for head injuries, Vincent frequently employs hypertonic or hypotonic solutions intravenously. The former are particularly useful after operation for traumatic edema of the brain.

TREATMENT OF HEMATOMAS

A hematoma large enough to give rise to signs of compression ought to be evacuated. Whether its location is extra-cerebral, subcerebral or intracerebral, a large opening should be made in the skull under local anesthesia. Rupture of a branch of the middle meningeal artery is less frequently the source of a hematoma than is generally taught. A fissured fracture can give rise to as much bleeding. After removal of the clot, preferably by aspiration, the dura is exposed, but a thin layer of coagulated blood is left on the brain. All visible intracranial bleeding is controlled by electrocoagulation, that from the bone edges by wax. Vincent never drains, having found that bleeding recurs as often with as without drainage. If a subdural hematoma is found, the opening should embrace a wide area of the vault of the skull; viz., a part of the frontal,

occipital and temporal regions and all of the parietal. To avoid extending the bone flap too far downward, an incision is made through the lowest point of the exposed dura to see whether the hematoma is continuous with one at the base. The latter constitutes a serious complication and death may occur during the operation. If the hematoma on the exposed surface is of greater duration, from two to three months for example, only the contents of the cyst that has been formed need be evacuated. To avoid secondary hemorrhage, the lateral ventricles, after every operation immediately following injury, should be filled with Ringer's solution. Intracerebral hematomas can be best evacuated by aspiration.

TREATMENT OF CEREBRAL EDEMA OF TRAUMATIC ORIGIN

If the edema involves the hemispheres, the best site for opening the skull is in the right frontal region, extending 4 or 5 cm. to the left beyond the median line. Subtemporal decompression alone is of no help in these cases. The edematous brain must be allowed to expand toward the vault so as to relieve the pressure on the vital structures at the base of the brain. The operation is completed by a subtemporal trephine opening with incision of the dura at its lowest point if there appears much subdural tension. The pedicle for the frontal osteoplastic flap should be in the temporal region. A large opening in the skull decompresses better than one realizes even without incision of the dura. In addition to such a wide frontal decompression procedure, Vincent advises intravenous injections of 15 per cent magnesium sulfate, 4 cc. every three to four hours, and a minimum of 12 mg. of strychnine sulfate in twenty-four hours.

TREATMENT OF COLLAPSE OF THE VENTRICLES

When recognized, Ringer's solution at a temperature of 37 C. (98.4 F.) is injected during operation directly into the lateral ventricles, through a small trocar with blunt ends. One must be sure that no cerebral edema exists; if such is the case, death may ensue immediately after injection of the ventricles.

Transmission to Ferrets of Human Influenza Virus

Reference has already been made to a report by de la Rivière and Cheve, at the Nov. 24, 1936, meeting of the Académie de médecine, showing that ferrets could be infected either with rhinopharyngeal mucus of human beings suffering from influenza or from ferrets previously inoculated. At a recent (February 9) meeting of the same society these investigators reported the results of further experiments. The material for inoculation of ferrets was obtained on the second or third day of an attack of acute influenza. The patients were asked to gargle with 50 cc. of a mixture composed of equal parts of physiologic solution of sodium chloride and bouillon. One half of this solution was used to determine the ordinary flora of the pharyngeal secretions of the patients and the other was filtered (Chamberland L 2). The sterility of the filtrate was controlled by inoculation on various aerobic and anaerobic mediums. No colonies appeared even after a week's incubation. The filtrate was then instilled intranasally in the ferrets and their morning and evening temperatures were recorded. A healthy animal was thus inoculated with the nasal secretion (diluted one fifth to one tenth in physiologic solution of sodium chloride and passed through an L 2 Chamberland filter). Some inoculations were also made by instilling into the nares of a healthy animal a 5 per cent suspension of the pulverized lung of an infected ferret. In both of these types of experiment a typical infection resulted. Throughout their study they found that the inoculation of the filtrate of the rhinopharyngeal secretions from cases of human influenza gave rise to identical manifestations, as had been found in employing a virus obtained from England derived from passage of the virus through mice. The temperature curves of human beings suffering from influ-

enza and inoculated ferrets were identical. A ferret inoculated a month previously with a virus obtained in London, when reinoculated with a filtrate from a recently infected human being, did not present evidences of the disease. A healthy ferret, however, was successfully inoculated with the same London virus, showing that the animal which had been reinoculated was immune.

Treatment of Fractures of the Skull in Children

At the March 3 meeting of the Académie de chirurgie, Clovis Vincent reviewed the symptoms and indications for operative intervention in brain injuries complicating skull fractures in adults. At the following meeting the experience acquired in observing 109 cases of skull fracture in children was the subject of a paper by the Sorrels and Gigon. A neurologic examination in every case had been made by André Thomas. The children varied in age from 3 months to 15 years, the majority of fractures following injuries on the street. Neither the extent of the line of fracture nor the number of its radiations seemed to bear any relation to the gravity of the clinical symptoms. All the classic meningo-encephalitic complications had been observed. The increase in pulse rate is an unfavorable sign, from the standpoint of prognosis. Among the neurologic signs two are of major importance: diminution of muscle tonus and a diminution in the rapidity with which an extremity falls when lifted. Pupillary changes are too inconstant to be of much value. Aside from cases in which operation is imperative (open fracture and intracranial hematoma) and those in which one does not hesitate to operate, there were others in which the question of whether or not to operate was much more difficult to decide. During the first thirty-six to forty-eight hours, if the coma persists and the pulse remains rapid, operation is indicated without delay, even after a temporary apparent improvement, if signs of involvement of nerve centers, mental confusion and a rapidly increasing pulse persist. Fractures of the skull in children are relatively benign, even though serious symptoms are present at the onset. These fractures heal with surprising rapidity, many within one to two weeks. Sequelae are comparatively infrequent (in only 3.5 per cent of the cases) in children. If an operation is performed early, important nerve sequelae are rarely observed.

BERLIN

(From Our Regular Correspondent)

April 14, 1937.

News of the Student Bodies

Since the last report on the faculties and student bodies of German universities (*THE JOURNAL*, July 4, 1936, p. 50) some further developments have taken place. It is eloquent of the situation that National Minister of Public Instruction Rust recently saw fit to address a public admonition to the university students. Rust declared in his speech that it is not the business of the students to "subject the docents (their own teachers!) to a thorough microscopic examination" for the purpose of "getting rid of them." Every student should make demands, not of others, but of himself. Rust expected not phraseology but accomplishment. In view of present conditions the minister must impose large obligations on students as well as on the research and teaching staffs of the universities.

It is perhaps significant that the whilom fuchrer of the Nazi German Students' League, Derichsweiler, has been deposed. The removal of this quarrelsome bully followed the demands of a vast number of professors who found their scholarly activities cruelly handicapped by the constant feeling of unrest. Two student organizations, the German Studentenschaft and the Nazi Studentenbund, are now united under the common headship of a "National Fuchrer of Students."

Henceforth all new matriculants at a university must register at the headquarters of the local student fuchrer. During the

first three semesters of residence a student will receive "politisch-weltanschaulich" instruction from the Nazi Studentenbund. To facilitate this program of indoctrination it has been decreed that a student must spend the first three semesters at one university. Heretofore a student has been free to transfer from one school to another at the end of any semester, and this flexibility has been a peculiar characteristic of German university life. Every German student shall have the opportunity of joining one of the "kameradschaften" sponsored by the Nazi Studentenbund. Far reaching and explicit regulations govern the conduct of these student organizations. Certain members of the Nazi Studentenbund, such as the Stamm-Mannschaften and the office holders are permitted to wear a distinctive uniform: a black coat under which is worn the brown shirt. A special flag has also been designed. The director of the Culture Bureau of National Student Activities has declared that a new type of campus life should be developed. The new National Socialist university milieu will have to evolve gradually. Planned "sings" and other musical activities, and carefully arranged social evenings may perhaps eventually come to take the place of the old student "kommerse" (the drinking bouts that were a famous feature of German student life). A new students' code of honor has also been created, based on the absolute satisfaction of affronts by the duel. This code, still in process of being drafted, regulates dueling and the use of weapons, with particular reference to saber duels. Affairs of honor will be decided by the saber duel. Since drunkenness is considered unworthy of a German, a student who receives an affront while he is intoxicated has no right to demand satisfaction. If a German student, while under the influence of drink, should offend the honor of a fellow student, the incident must be settled otherwise than by dueling. It will be recollected that after the war the German government prohibited dueling among students. The custom, however, continued to have a desultory clandestine existence and occasionally duelists were actually punished. But in the years just prior to the advent of the present régime the enforcement of the laws against dueling had been extremely lax.

All future students who have completed secondary school and intend to enter a university must first put in a year of labor service. Students unfit for labor service proper must spend the same period in some prescribed equivalent service. Labor service is now compulsory for all the youth of Germany. Exceptions are, however, granted in special cases, especially for youths who contemplate certain technical studies such as aeronautics, ship building, marine engineering and marine electrotechnics. Exemption from labor service is granted in these cases in order to save time, as there is a marked shortage of young technicians in the mentioned fields.

Women who contemplate a university career must also put in a year of labor service. Those who are unfit may perform special duties in the Nazi Social Welfare Service. According to the terms of an agreement between the National Student Administration and the German Red Cross, women medical students must include in their course of study special training for emergency medical service in case of aerial attack. In the first semester the women are trained in the fundamentals of first aid service, in the second semester and during vacations they are trained as Red Cross "Samaritans," and from the third to the seventh semesters they spend their vacations in training as Red Cross assistants. The latter type of training includes three months in a hospital service. After the preliminary examination taken at the end of the fifth semester, the woman medical student is placed on the reserve list for emergency service in case of aerial attack. It is now prescribed by law that a woman student who appears for the state examination in medicine must be certified to have fulfilled the requirements with regard to "medical service in case of aerial attack."

Observations of Divers

Professor Ferdinand Wiethold of Kiel has investigated the changes produced in divers by a too rapid descent into the water. These may be of a dangerous character if they result from lack of air in the diving dress or a careless manipulation of the helmet valves. The increased water pressure decreases the volume of compressible air to such a degree that soon the helmet alone contains air, while the pliable texture of the dress proper permits the garment to become tightened about the entire body by the full force of the hydraulic pressure, which increases according to depth. Any further increase in the water pressure then causes that part of the body which is enveloped in the pliable dress to be under greater pressure than the helmet-protected head, neck and shoulders, the latter parts being subjected to the lesser pressure of the air content. From this state of affairs results (1) mechanical hindering of the respiration, (2) shifting of the blood from those parts of the body which are under unchecked water pressure to those parts which are under lighter pressure due to the protection of the helmet (pressure stasis) and (3) effect of aspiration on the respiratory passages and the lungs.

The pressure stasis and the mechanical hindrance to respiratory movement become dangerous only if present for a long time. The cupping glass effect on the lungs appears to be the most serious factor, as this quickly leads to a hemorrhagic pulmonary edema or even to total hemorrhagic infarction of the lungs. For divers who descend to great depths not at the beginning of submersion but after having breathed the compressed air at a higher level for some time, there is greater danger since the pulmonary alveoli, filled as they are with bloody moisture, lose their ability to eliminate the gases produced. In this way too there arises the danger of decompression injury. The foregoing observations are based on actual clinical and postmortem study of deep sea divers as well as on animal experimentation.

Progress with Asocial Venereal Disease Patients

In central Germany (Thuringia) a detention unit for asocial female patients afflicted with venereal diseases was created by the ministry after the way had been prepared by appropriate legislation. Data based on the eighteen months existence of this department are now available. Duration of internment depends on former behavior, the number of infections suffered, the previous expenses, the home surroundings and the social prognosis; the last named is determined by an attending psychiatrist. The behavior of these asocial persons during internment is also taken into consideration. The patients are treated until cured at the dermatologic clinic of the University of Jena. If a patient exhibits no further clinical manifestations, she is subjected to rigorous work therapy. When a youthful patient is released, an effort is made to reunite her with her family. For older patients and those without family, a placement bureau finds employment. If a job is found for a former patient, it must not be relinquished and a follow up is maintained by social welfare agencies. According to the data, some of the asocial women for whom employment was found relapsed into loose conduct. Against such persons rigorous measures, notably prolonged detention, were instituted. The method followed by this unit has shown itself to be well worth while and its wider application is to be recommended.

Better Food for Young Workers

The National Ministry of Labor has issued regulations which seek to guarantee suitable nourishment during working hours for growing youths employed in industry. The concentration of the working hours into the strictest possible limits with only brief pauses, a situation that has become increasingly prevalent in the cities, makes it generally impossible for the young worker to take his midday meal at home. Although some employers

are accustomed to provide their employees with warm, nourishing and inexpensive meals, this is by no means a universal custom. The new regulations provide that all industries, the lesser as well as the greater, must furnish at least a bowl of hot soup to the youthful worker during the noon recess. It is pointed out that this plan will be of benefit to the employer as well as the employee, since the better nourished worker will do better work. The inspectors from the Industrial Supervision Authority will see to it that the new regulations are observed, especially with respect to the furnishing of soup or other warm food to workers under the age of 18.

BUCHAREST

(From Our Regular Correspondent)

March 25, 1937.

Atypical Forms of Neurosyphilis

At a recent meeting of the medical society, Professor Paulian stated that syphilis, when localized, may produce symptoms simulating those of lethargic encephalitis. The symptoms of epidemic encephalitis, accompanied by the diagnostic signs of neurosyphilis may often be recognized. Of these, anisocoric pupils and the Argyll Robertson sign take first rank. These two manifestations, however, are constant in only three fourths of the cases and neither is pathognomonic. Thus absolute diagnosis cannot be made on symptoms alone, but the complete examination of the spinal fluid is imperative.

The pathologic picture described by Claude and Lhermitte under the syndrome of the infundibulum may be caused not only by syphilis but also by encephalitis or neoplasms. Another interesting localization is the dysphagic form of neurosyphilis, described by Professor Bacaloglu of Bucharest University. In cases of this nature the patient has to be fed with a tube and cannot swallow solid or liquid foods. Specific infections of the small brain may mimic tumors so much that these patients are subjected to operation. So-called essential epilepsy may be estimated to be of heredosyphilitic nature in about 16 per cent.

The evolution of the clinical manifestations of neurosyphilis requires from six to fifteen years. In this way there exists a latent period, which is revealed only by the analysis of the spinal fluid. Lumbar puncture should be made in every case of syphilitic infection. By doing so, efficacious prophylactic measures against the outbreak of neurosyphilis may be taken. If the spinal fluid is tested only when the presence of neurosyphilis is suspected, the advantages of the treatment during the latent and preclinical stages are missed.

According to a law recently passed by the national assembly and the senate, the military service required of young physicians has been extended to twelve months. This period was formerly of two months' duration. Of the twelve months the first two is devoted to military training. The next eight months service is placed at the disposal of the minister of health, during which time the young physicians are assigned to medical service in villages. The remainder of the time is again devoted to the army during the grand maneuvers. In this way the minister of public health hopes to improve the medical service in the villages.

Scarlet Fever Peritonitis

Dr. Gavrilă, lecturer to the University of Bucharest, describes three cases of scarlet fever in which primary, acute, purulent, generalized streptococcal peritonitis occurred. The first patient, a girl aged 13, had a mild scarlatina, and on the twenty-second day, during normal convalescence, a purulent peritonitis set in. Immediate surgical intervention failed to save her life. The second patient, a boy aged 12, had acute peritonitis on the twenty-fourth day of a severe septic scarlet fever. Surgical intervention here also was ineffective. The third patient had purulent peritonitis on the eleventh day of septic scarlet fever.

The patient died without surgical intervention. In all three cases hemolytic streptococci could be cultivated from the abdominal pus. Internal treatment is usual in such cases, but of Sabadini's twelve patients treated internally ten died, while of the eight treated surgically, four survived.

International Congress of Military Medicine

The ninth International Congress of Military Medicine and Pharmacy will be held in Bucharest June 2-10, under the patronage of King Carol. The aims of the congress are (1) to study methods and more practical therapeutic and prophylactic measures in the handling and treatment of the wounded and sick, (2) to maintain and foster good professional relations between the sanitary officers of different nations and (3) to advance suitable methods for the humanization of warfare, by international cooperation. Such congresses have been held at Brussels, Rome, Warsaw, Paris, London, The Hague and Madrid. The committee entrusted with the organization of the congress consists of civil and military medical members, headed by Dr. Iliescu, the surgeon general. The scientific program comprises five problems: 1. The organization and establishment of the activity of the sanitary service in operation in the field and on the sea: England and the United States. 2. The transport, hospitalization and treatment of those wounded by gas: Germany and Yugoslavia. 3. The organization and the function of the surgical service with the motorized troops. 4. The use of the different colorimetric analyses in the laboratory: Switzerland and Japan. 5. Comparative study of the feeding of sick and wounded soldiers in war and peace: France and Turkey. The papers will be published in one of the official languages of the congress: English, French, German, Italian or Spanish. All papers intended to be read at the congress must be addressed to the general secretariat. Membership in the congress, besides the delegates of the respective governments, may include any physician, pharmacist, dentist, veterinary surgeon or administrative officer attached to the territorial, naval or aviation military services. The registration fee to be paid by all who attend is 1,000 lei (\$7.50) for men and 600 lei for women and children. This fee entitles all members to receive the official publications and to partake of all festivities in connection with the congress. Information may be obtained from the Secretariat General, Bucharest II, Institutul Sanitar Militar, Rumania.

Experience with Suboccipital Puncture.

More than 400 suboccipital punctures have been performed by Dr. Maior. This experience has led him to state that the puncture of the cerebellomedullary cistern is without danger when done with adequate precaution and with dexterous hands. From the point of view of outpatient clinics, this method has the advantage of allowing patients to pursue their daily work immediately after the puncture. The timely neurolocalization of syphilis thus effected permits early adequate treatment and a considerable reduction in the number of paralytic and tabetic patients.

Marriages

EVERETT TWEED ALEXANDER, Barnsdall, Okla., to Miss R. Catharine Stephens of Independence, Mo., January 10.

JAMES MARTIN HADEL JR., Richmond, Va., to Miss Allie Bryant Blue of Southern Pines, N. C., March 27.

EDWIN DARRACOTT VAUGHAN, Ashland, Va., to Miss Blanche Van Doran Bashaw of Richmond, April 3.

JOHN HAMILTON SCHERER to Miss Jessie Lee Swisher, both of Richmond, Va., March 29.

SAMUEL HOWARD GARST to Miss Julia Virginia Barber, both of Staunton, Va., April 14.

HERMAN H. HINES, Clinchco, Va., to Miss Dorothy May London in March.

Deaths

George Henry Fox * an Affiliate Fellow of the American Medical Association, father of Dr. Howard Fox, New York, died, May 3, at his home in New York, aged 90, of heart disease. Dr. Fox was born in Ballston Spa, N. Y., Oct. 8, 1846. He was educated at the University of Rochester and received a medical degree from the University of Pennsylvania Department of Medicine in Philadelphia in 1869. After three years of study in Leipzig, Berlin, Vienna, London and Paris, he began practice in New York in 1873. From 1875 to 1879 he was clinical professor of diseases of the skin at the Woman's Medical College of the New York Infirmary and in the latter year went to Starling Medical College, Columbus, Ohio, as clinical professor of diseases of the skin. Two years later he became clinical professor of diseases of the skin and later professor of dermatology at Columbia University College of Physicians and Surgeons, remaining there until 1907. In addition he served as professor of diseases of the skin at the New York Post-Graduate Medical School and Hospital from 1890 to 1895. Dr. Fox was one of six founders of the American Dermatological Association in 1876 and in 1925 was made honorary president. In 1891 he was president of the Medical Society of the County of New York and in 1894 of the Medical Society of the State of New York. He was a member of the American Academy of Medicine and the Royal Society of Medicine of Great Britain. At one time he was consulting dermatologist to the board of health of New York and attending physician to the New York Skin and Cancer Hospital. Dr. Fox and three brothers served in the Civil War. He was the author of photographic atlases on diseases of the skin, a book entitled "Skin Diseases in Children," and "The Lineage of One Hundred American Physicians Named Fox."

Elias Potter Lyon, Minneapolis, for twenty-three years professor of physiology and dean of the University of Minnesota Medical School, Minneapolis, died suddenly, May 4, aged 69, at Trafford, Pa., while returning from a vacation in Florida. Dr. Lyon was born in Cambria, Mich., Oct. 20, 1867. He graduated from Hillsdale College in Michigan and received the doctor of philosophy degree from the University of Chicago in 1897. St. Louis University conferred on him the degrees of doctor of medicine in 1910 and doctor of laws in 1920. He taught at Hillsdale College, Harvard School, Chicago, and Bradley Polytechnic Institute, Peoria, Ill. He was assistant professor of physiology at Rush Medical College from 1900 to 1904 and was assistant professor of physiology and assistant dean at the University of Chicago from 1901 to 1904. He was professor of physiology at St. Louis University School of Medicine from 1904 to 1913 and dean from 1907 to 1913, when he went to the University of Minnesota Medical School as professor of physiology and dean. In 1894 he served as biologist of the Cook Greenland expedition, from 1908 to 1911 investigator for the United States Bureau of Fisheries and investigator during various summers for the Marine Biological Laboratory, Woods Hole, Mass. In 1925 Dr. Lyon was a trustee of the Hillsdale College. He was an associate member of the Minnesota State Medical Association, a fellow of the American Association for the Advancement of Science, and a member of the American Physiological Society and the Society of Experimental Biology and Medicine. He was chairman of the Section on Pathology and Physiology of the American Medical Association in 1934 and 1935 and president of the Association of American Medical Colleges in 1913 and 1914. In 1936 the Elias Potter Lyon Lectureship was established in his honor at the University of Minnesota.

Daniel Paul O'Brien, New Bedford, Mass.; Harvard University Medical School, Boston, 1904; member of the Massachusetts Medical Society and the New England Surgical Society; fellow of the American College of Surgeons; served during the World War; at one time medical inspector in the public schools; visiting surgeon to St. Luke's Hospital and St. Mary's Orphans' Home; for many years medical examiner for the Fourth Bristol District; aged 59; died, February 27, in the Lawrence and Memorial Associated Hospitals, New London, Conn., of cerebral hemorrhage.

Clarence Henry Westgate, Morenci, Mich.; Detroit College of Medicine, 1902; member of the Michigan State Medical Society; past president and secretary of the Lenawee County Medical Society; was secretary of the board of education of Morenci; medical director of the Lenawee County Tuberculosis Sanatorium, Adrian; on the visiting staff of the Detwiler Memorial Hospital, Wauseon, Ohio; on the staff of the Emma L. Bixby Hospital, Adrian; aged 56; died, February 27, of heart disease.

Henry Stevens Tucker * Chicago; Bennett Medical College, Chicago, 1879; demonstrator of anatomy at his alma mater, 1879-1883; professor of surgery, attending and consulting physician to the Bennett College Hospital, 1889-1900; dean and professor of surgical gynecology at the Chicago College of Medicine and Surgery, 1902-1914; for six years attending surgeon to the Cook County Hospital; aged 83; died, April 21, of edema of the lungs, chronic myocarditis and essential hypertension.

James Edmond Coleman * Canton, Ill.; Rush Medical College, Chicago, 1884; past president of the Fulton County Medical Society; fellow of the American College of Surgeons; member, and at one time president, of the board of education; served as volunteer in the American Medical Service Corps during the World War; aged 74; for many years chief surgeon to the Graham Hospital, where he died, March 30, following an appendectomy.

Franklin Uriah Painter, Corpus Christi, Texas; Memphis (Tenn.) Hospital Medical College, 1892; member and vice president, 1917-1918, of the State Medical Association of Texas and counselor of the Sixth District, 1919-1925; fellow of the American College of Surgeons; past president of the Nueces County Medical Society; chief of the surgical staff of the Fred Roberts Memorial Hospital; aged 74; died, suddenly February 4, of heart disease.

Orval James Cunningham, East Cleveland, Ohio; Rush Medical College, Chicago, 1904; member of the Associated Anesthetists of the United States and Canada; formerly associate professor of surgery (anesthesia), University of Kansas School of Medicine, Kansas City; for many years on the staff of the Bell Memorial Hospital, Kansas City, Kan.; aged 57; died, February 23, in the Lakeside Hospital, Cleveland, of cerebral thrombosis.

Harold Bunce Myers * Portland, Ore.; Western Reserve University Medical Department, Cleveland, 1911; associate dean and professor of pharmacology, University of Oregon Medical School; member of the Associated Anesthetists of the United States and Canada; fellow of the American College of Physicians; on the staff of the Multnomah Hospital; aged 50; died, March 16, in St. Vincent's Hospital, of coronary thrombosis.

William Charles Schroeder, Baltimore; University of Virginia Department of Medicine, Charlottesville, 1899; formerly connected with the U. S. Public Health Service; at one time superintendent of the Municipal Sanatorium, Otisville, N. Y., and the Delaware County Tuberculosis Sanatorium, Delhi, N. Y.; aged 61; died, February 18, of coronary occlusion and chronic nephritis.

Arthur Romanzo Weed, New Haven, Conn.; University of Vermont College of Medicine, Burlington, 1912; member of the Connecticut State Medical Society; served during the World War; on the staffs of the New Haven Hospital and the Grace Hospital; aged 54; died, February 7, in Phoenix, Ariz., of arteriosclerosis and nephritis.

Orr L. Perry, Elkins, W. Va.; College of Physicians and Surgeons, Baltimore, 1891; member of the West Virginia State Medical Association; past president of the Barbour-Randolph-Tucker County Medical Society; county public school physician; formerly city health officer; aged 75; died, February 21, in a local hospital, of influenza.

Louis Henry Fales, Livermore, Calif.; Rush Medical College, Chicago, 1897; fellow of the American College of Physicians; formerly surgeon in the U. S. Public Health Service Reserve; on the staff of the Veterans Administration Facility; aged 67; died, February 13, in a hospital at San Francisco, of aplastic anemia.

John Harvey Foster, Michigan City, Ind.; Rush Medical College, Chicago, 1900; member of the Indiana State Medical Association; formerly county coroner; at one time physician in charge of the Indiana Hospital for Insane Criminals and Indiana State Prison; aged 64; died, March 8, of arteriosclerotic heart disease.

Arthur Rudolph Mandel * New York; University and Bellevue Hospital Medical College, New York, 1902; professor of clinical pathology at his alma mater; attending physician and consulting pathologist to St. Vincent's Hospital; aged 60; died suddenly, March 7, at Lake Mahopac, of coronary thrombosis.

John Walter Donaldson * Marietta, Ohio; Cleveland Homeopathic Medical College, 1901; past president and secretary of the Washington County Medical Society; served as a member of the city council and formerly president; formerly health officer; aged 63; died, February 20, of angina pectoris.

Jacob Willis Hill * South Bend, Ind.; Jefferson Medical College of Philadelphia, 1881; past president of St. Joseph County Medical Society; for many years a member of the county board of health; on the staffs of the Epworth Hospital and St. Joseph's Hospital; aged 78; died, February 23.

Eugene Leo Maguire * Somerville, Mass.; Harvard University Medical School, Boston, 1905; member of the New England Obstetrical and Gynecological Society; on the staff of the Somerville Hospital and secretary of its medical board; aged 58; died, February 26, of carcinoma of the lung.

Albert Lawrence Anderson, Brownwood, Texas; University of Texas School of Medicine, Galveston, 1896; member of the State Medical Association of Texas; on the staff of the Stump General Hospital and formerly on the staff of the Medical Arts Hospital; aged 70; died in February.

Ernest Charles Riebel * Chicago; Northwestern University Medical School, Chicago, 1900; formerly instructor in surgery at his alma mater; on the senior surgical staff of the Englewood Hospital; aged 71; died, March 28, in the Albert Merritt Billings Hospital, of morphine poisoning.

Gregorio Singian, Manila, P. I.; University of Santo Tomas College of Medicine and Surgery, Manila, 1896; formerly professor of surgery at his alma mater; medical director of the Hospital de San Juan de Dios; president of the Philippine College of Surgeons; aged 64; died, January 29.

Richard George Wiener, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878; member of the Medical Society of the State of New York; for many years on the staff of the Harlem Hospital; aged 82; died, February 8.

William F. Hays, Claremore, Okla.; University of Louisville (Ky.) Medical Department, 1890; member of the Oklahoma State Medical Association; past president of the Rogers County Medical Society; aged 70; died, February 26, as the result of a hip injury received in a fall.

John Marshall French * Milford, Mass.; University of Vermont College of Medicine, Burlington, 1877; for twenty-five years on the medical staff of the school board; for many years on the staff of the Milford Hospital; aged 87; died, February 27, of bronchopneumonia.

William Wallace Allen * Mill City, Ore.; Willamette University Medical Department, Salem, 1905; past president of the Polk-Marion Counties Medical Society; bank president; for many years member of the school board; aged 60; died, February 20.

Ezekiel Ezra Smith, Newport News, Va.; Howard University College of Medicine, Washington, D. C., 1903; formerly on the staff of the Whittaker Memorial Hospital; aged 60; died, February 26, of hypertension, myocarditis and chronic nephritis.

Charles Frederick Deacon * Providence, R. I.; Harvard University Medical School, Boston, 1900; for many years surgeon for the city fire department; aged 62; died, February 24, in the Jane Brown Memorial Hospital, of streptococcal septicemia.

Warren Worth Koiner * Beckley, W. Va.; College of Physicians and Surgeons, Baltimore, 1906; served during the World War; on the staff of the Beckley Hospital and the Oak Hill (W. Va.) Hospital; aged 57; died, February 22, of pneumonia.

Joseph H. Hand, Blakely, Ga.; Tallahassee College of Medicine and Surgery, Medical Department of the University of Florida, Jacksonville, 1884; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 80; died, February 4.

William Henry White * Goffstown, N. H.; Detroit College of Medicine, 1901; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1903; aged 62; died, February 17, of arteriosclerosis and cerebral hemorrhage.

Carl William Forsberg, Minneapolis; University of Minnesota Medical School, Minneapolis, 1923; member of the South Dakota State Medical Association; aged 39; died, February 21, of sarcoma of the hand with metastases to the lungs.

William George Kelly * Bay City, Mich.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1897; past president of the Bay County Medical Society; formerly county coroner; aged 63; died, February 17.

Wilbur Mead Holtz * Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; veteran of the Spanish-American and World wars; aged 61; died, February 27, of streptococcal bacteremia and pharyngitis.

John Jefferson Davis, Madison, Wis.; Hahnemann Medical College and Hospital, Chicago, 1875; since 1911 curator herbarium, University of Wisconsin; aged 84; died, February 26, of coronary thrombosis.

Henry Ermentraut, Watertown, N. Y.; New York Homeopathic Medical College, 1882; United States Medical College, New York, 1882; aged 77; died, February 27, of chronic myocarditis and arteriosclerosis.

John Joseph Cullinan, Hampton, Va.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1910; served during the World War; aged 48; died, February 26, of pneumonia and heart disease.

John Stone Carlton, Columbus, Ohio; Starling Medical College, Columbus, 1893; member of the Ohio State Medical Association; aged 68; died suddenly, February 28, in Miami, Fla., of heart disease.

William W. Leech, Apollo, Pa.; Jefferson Medical College of Philadelphia, 1880; member of the Medical Society of the State of Pennsylvania; aged 87; died, February 26, of chronic myocarditis.

Chandler Spinx Lynch, Lumpkin, Ga.; Atlanta Medical College, 1914; member of the Medical Association of Georgia; served during the World War; aged 47; died, February 20, of coronary occlusion.

Charles Thomas Harris * Kiowa, Okla.; Chattanooga (Tenn.) Medical College, 1901; aged 66; died, February 7, in a hospital at McAlester, of arteriosclerosis, acute nephritis and hemiplegia.

Guy Franklin Duncan, Sparta, N. C.; Baltimore University School of Medicine, 1902; aged 61; died, February 27, in a hospital at Elkin, of injuries received in an automobile accident.

Christopher Howson, Weaverville, Calif.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1905; aged 63; died, February 7, of bronchopneumonia and influenza.

Robert L. Z. Bridges, Brinson, Ga.; Louisville (Ky.) Medical College, 1894; member of the Medical Association of Georgia; aged 66; died, February 14, of mitral regurgitation.

Jacob Rettich, Cincinnati; Cincinnati College of Medicine and Surgery, 1901; physical director for ten high schools; aged 69; died, February 16, of arteriosclerotic heart disease.

Philip Robert Vivirito * Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1929; aged 34; died, February 2, of carcinoma of the colon.

Hugh Seymour Townsend * Buffalo; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; aged 75; died, February 1, of carcinoma of the colon.

Henry Orlando Lacey, Somerville, Mass.; Tufts College Medical School, Boston, 1908; also a pharmacist; aged 56; died, February 9, in Belmont, of cirrhosis of the liver.

John Carlton Riggins * Tucson, Ariz.; Jefferson Medical College of Philadelphia, 1929; on the staff of the Thomas-Davis Clinic; aged 33; died, February 4, of pneumonia.

William Henry Whittle, New Orleans; College of Physicians and Surgeons, Baltimore, 1882; aged 78; died, February 15, of fracture of the femur due to a fall.

Frank Joseph Sedlak, Scranton, Pa.; American College of Medicine and Surgery, Chicago, 1906; aged 63; died, February 14, in the Hahnemann Hospital, of pneumonia.

Edward R. Owings * Baltimore; University of Maryland School of Medicine, Baltimore, 1889; aged 68; died suddenly, February 15, of coronary thrombosis.

John Henry Taylor, Cleveland; Meharry Medical College, Nashville, Tenn., 1919; aged 43; died, February 3, in the Mount Sinai Hospital, of pneumonia.

Eli Shriver Jr., Buffalo; University of Buffalo School of Medicine, 1900; aged 62; died, February 12, in the Sisters' Hospital, of mitral stenosis.

Thomas Alfred Dugdale, South Bend, Ind.; Indiana University School of Medicine, Indianapolis, 1908; aged 53; died, February 11, of pneumonia.

Milton Jay Marsh, Hannibal, N. Y.; University of Georgia Medical Department, Augusta, 1899; aged 60; died, February 21, of heart disease.

William C. Webb * Higginsville, Mo.; Medical College of Ohio, Cincinnati, 1886; aged 73; died, February 1, of coronary occlusion.

Richard James Shute, Windsor, Ont., Canada; Western University Faculty of Medicine, London, 1912; aged 63; died, February 23.

Correspondence

TRICHLORETHYLENE IN MIGRAINE

To the Editor:—A publication by H. S. Rubinstein in the *Archives of Neurology and Psychiatry* for March on the use of trichlorethylene in the treatment of migraine prompts us to communicate briefly our experience with this drug as a therapeutic agent in headache. Attracted by the idea that a volatile medicament might offer a simple means for the prompt relief of headache, we tried trichlorethylene on a small group of patients in February 1936. We selected this drug because of the reports of occasional success with it in the relief of trigeminal neuralgia and angina pectoris.

Trichlorethylene was supplied by the Calco Chemical Company in glass pearls containing 1 cc. of the substance. In the treatment a pearl would be crushed in gauze, placed in the bottom of a drinking glass, and the vapor inhaled by the patient. If relief was not obtained from the first ampule within fifteen minutes, a second was administered; but not more than 2 cc. was given for any one attack. Complete history and physical examination were recorded, and objective and subjective changes were noted in each experiment.

Eighteen severe headaches occurring in fourteen patients were treated with trichlorethylene. The disappointing results obtained in this small group discouraged further investigation of this treatment. The accompanying table summarizes our experience:

Results of Treatment

Migraine attacks (9 attacks in 6 patients)	
Complete relief	2
Uncertain relief	3
Complete failure	4
Nonmigraine headaches (9 attacks in 8 patients)	
Complete relief	2
Uncertain relief	1
Complete failure	6

The six migraine patients were classic cases, and all nine attacks were severe. Only two attacks yielded satisfactorily; i. e., practically complete subsidence of discomfort within thirty minutes. In one patient, three successive attacks were entirely uninfluenced by trichlorethylene. In another subject one attack terminated dramatically, but a subsequent seizure failed to yield to the inhalation.

The nonmigrainous cephalalgias included such cases as menstrual, posttraumatic, fatigue, and sinus or "cold" headaches. Of nine attacks in eight patients, relief was obtained again in only two. Therefore, among the eighteen headaches treated, only four were satisfactorily relieved, and complete failure resulted in more than half of the instances. It is of passing interest to note that the proportion of favorable results is similar to that reported by Glaser (*West. J. Surg.* 39:901 [Dec.] 1931) for tic douloureux. We observed no harmful effects from the inhalations, but symptoms and signs of first degree inhalation anesthesia were usually evident.

Apparently our experience differs considerably from that of Rubinstein, who reported consistently beneficial results in all of his six migraine patients. Further experience will probably allow a better judgment of the value of trichlorethylene in migraine. It is certainly not a specific remedy for migraine, and it is far from being a headache panacea.

Two recent reports adequately review the pharmacology and toxicology of trichlorethylene (Eichert, Herbert: *Trichlorethylene Intoxication*, *THE JOURNAL*, March 9, 1936, p. 1652. Love, W. S.: *Ann. Int. Med.* 10:1186 [Feb.] 1937). The present evidence appears to indicate that relief of pain in angina pectoris, tic douloureux and migraine is probably dependent

on the central sedative and anesthetic properties of this compound. It is true that clinical and experimental poisoning by this agent is less severe than, and differs greatly from, industrial poisoning, and trichlorethylene is apparently less toxic than chloroform. However, it must be remembered that this chemical belongs to, and shares the pharmacologic properties of, the halogenated aliphatic anesthetics. Indeed, it has even been used clinically for complete surgical anesthesia. Despite the fact that no serious untoward effects have been reported from the cautious and proper use of trichlorethylene in the relief of pain, nevertheless in our opinion this drug is not one to be employed indiscriminately or without the knowledge and supervision of the patient's physician.

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THE MECHANISM OF EXOPHTHALMOS IN EARLY ACTIVE EXOPHTHALMIC GOITER

To the Editor:—In order to advance my theory of exophthalmos in exophthalmic goiter, based on 300 operative cases from September 1924 to March 1937 (a twelve and one-half years period) it is necessary to agree on certain fundamentals:

1. That the exophthalmos is due to exophthalmic goiter.
2. That exophthalmos is usually bilateral and in some relation to the severity of toxicity.
3. That exophthalmos usually subsides when toxicity is removed.
4. That exophthalmos is less frequent (60 per cent in my cases) since the advent of compound solution of iodine and since patients come early for surgery.

As the condition has not been understood, and as the literature is flooded with varied theories, my explanation to be tenable should have the following requisites:

1. It must explain the varied anatomic physiologic and pathologic changes, beginning with the first eye sign, the stare, and covering the varied degrees of exophthalmos. (The malignant type with the changes of toxicity preoperatively and postoperatively will be taken up in my complete report.)
2. It cannot contradict any of our proved facts.
3. It must not violate Pascal's law.

With the increased activity of the thyroid in the early phase of exophthalmic goiter there is a stimulation of the nervous system, particularly the sympathetic (tremor, sweating, redness of skin). The first manifestation of sympathetic stimulation in the eye is the stare due to retraction of the upper lid (Stelwag's sign) from an involuntary continued contracture of the levator palpebrae superioris. This muscle, arising above and in front of the optic foramen, runs forward and ends anteriorly in a wide aponeurosis, which splits in three lamellae. The superficial lamella blends with the palpebral fascia (orbital septum; torso-orbital fascia); the middle lamella (largely non-striped muscle) is inserted into the upper margin of the tarsus; the deepest lamella is attached to the superior fornix of the conjunctiva.

Moderate continued contracture of this muscle at first just takes up the slack in the orbital septum and exaggerates the elevation of the upper lid, producing the characteristic stare. Soon it retracts the palpebral fascia (orbital septum), stretching it backward (intra-orbitally), thereby slightly raising the intra-orbital pressure. This gradually adjusts itself by a slight forward movement of the eye, and, as the muscle spasm continues, the fascia retracts further, the pressure adapting itself by more

protrusion of the eye, finally resulting in a noticeable exophthalmos. While this phenomenon is going on, the crowding of the lid against the stretched orbital septum somewhat impedes drainage of the orbital tissue spaces, and a mild edema begins, which further accentuates the protrusion.

ROBERT E. MORAN, M.D., Washington, D. C.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

URTICARIA WITH ANGIONEUROTIC EDEMA

To the Editor:—The following is the history of a patient whose condition has me "stumped." I would appreciate any suggestions you might make as to diagnosis and treatment: A white man, aged 34, weighing 143 pounds (65 Kg.), has repeated attacks of localized swelling of the skin. The swollen areas vary from the size of a pea to irregular areas the size of the palm. Most of the swollen areas, however, are about the size of a walnut to the size of an egg. Although these swollen areas may appear on any part of the skin, they are most prevalent on the back and especially along the spine (about 1 or 2 inches from the spinuous processes). The areas are pale red, feel somewhat indurated, do not itch (occasionally a very slight itching may be present), and are not tender or painful except when they involve a joint. The joints most likely to be affected are the knees, ankles and joints of the feet. During the attacks, when these wheals appear, any slight scratch, pressure or trauma to the skin will produce a welt. The shoulder strap of a fishing tackle box or an ordinary belt about the hips will produce a welt on the skin for the full extent of the strap. Welts appear on the forearm when pressure is made by boxes or furniture that he may be carrying. The individual welts last one or two days and then disappear, although the period during which they may arise may be of two or three weeks' duration. He is now in the fifth attack of this condition; the first was in the spring of 1935, when it seemed that only joints were involved (feet, ankles and knees), the second in the spring of 1936, the third in November 1936, the fourth in January 1937, and the fifth in February 1937. The fourth attack followed his investigation of a leaking roof in the attic. He pulled himself up through a small trap door entrance to his attic and walked about on the cross beams in his thin-soled house slippers. The following day he noticed large areas of swelling of the posteromedial aspects of both arms where they had borne his weight in pulling himself up through the trap door, and he noticed that there was increasing pain and swelling in the region of the inner arches of the feet. Numerous other areas of localized swelling were present on the extremities and trunk. He was given 0.7 cc. of epinephrine solution (1:1,000) with no effect after a period of four hours. All symptoms disappeared in three days.

The patient came to my office two days after the onset of the fifth attack (about one month after the fourth attack). The lesions in this attack differed from those of former attacks. They were predominantly on the back but were more scattered over the region of the scapulae and small of the back rather than along the spine, where they had formerly predominated. There were a few scattered over the legs, arms and wrists. The lesions themselves differed from the former ones in that they were smaller, varying from a pinhead to a 50 cent piece (30 mm.). Instead of being rounded they were flat on top (the edges as high as the center); the peripheral boundaries were more irregular or serrated; the lesions were bright red, whereas former lesions were slightly pinker than the surrounding skin; the centers of the larger lesions were clear or pale, giving a ring or horseshoe appearance; the larger lesions were elevated about 3 or 4 mm. above the surrounding skin; there was more itching, not intense but slightly annoying. By the end of the third day the lesions had practically disappeared, but the right foot began to swell and in an hour's time was so swollen that he could not put on his shoe. This swelling lasted for two days. The swelling involved only the foot, there being no involvement of the ankle. There was no swelling in the left foot. At the same time there was slight swelling in the right knee, and pain appeared in the knee as the swelling subsided. No heat or redness in the swollen areas occurred.

The patient gives no history of allergy to any food except strawberries. He was not sensitive to strawberries before 1935 and since that time has eaten them only twice with an urticarial reaction each time. He has taken calcium gluconate and cod liver oil concentrate daily since the attack in November 1936. He had previously been on alkalis and a diet of fruits and vegetables (no meat or acid-producing foods) for a period of three months with no effect on the condition. He seems perfectly well during these attacks except possibly for a little loss of "pep." His wife believes that she can predict the approach of an attack because "he looks a little pale." He is of the slender, energetic type. Until the past year or so he was quite active in athletics, such as basket ball, baseball and volley ball. The physical examination is entirely negative except for a slight dermographic reaction. The temperature and pulse are normal throughout the attacks. Urinalysis is negative. He is the manager of a furniture store. He has always been in good health. He

had measles, pertussis and chickenpox during childhood. He had inflammatory rheumatism and typhoid at 7 years of age. He had an attack of rheumatism in the knees lasting but a few days in the fall when 8 and again at 9 years of age. He did not have chorea or tonsillitis. There have been no operations, symptoms referable to gastro-intestinal, genito-urinary or cardiovascular disease or to disturbances of the respiratory system. No weight loss has occurred but he cannot gain weight. The bowels move regularly without laxatives. There is no history of hay fever or asthma. He does not use alcohol. He smokes one package of cigars a day. He sleeps well. His father, one brother and one sister died of tuberculosis. One sister was in a sanatorium eight years with tuberculosis and was dismissed two years ago as cured. The mother died of carcinoma. There is no history of any allergic condition in the family. I was of the opinion that the condition was a type of angioneurotic edema until I found that there was no change in the lesions after injection of epinephrine solution. The patient is an intelligent, well educated man, constantly watching his diet and environment for something that may be producing the condition. He is distinctly not of the neurotic type unless I am badly fooled.

M.D., Indiana.

ANSWER.—The description of this condition speaks strongly for urticaria combined with angioneurotic edema. The fact that the patient may not obtain relief from injections of adequate amounts of epinephrine solution is not a valid enough objection to this diagnosis. Epinephrine is frequently without effect in urticaria. Even in asthma it may fail to produce relief. The fact that the patient is definitely sensitive to one known food, even though it is such a commonly accused food as strawberries, suggests that the source of these attacks may also be due to definite protein sensitivity.

The determination of the cause of urticaria is at times one of the most difficult problems for even a seasoned allergist. The following outline of causes is therefore offered as a guide for further work:

1. Ingestant factors: (a) Any food may be a cause. Often a patient blames meat when the onions or pepper used for flavoring is the cause. (b) Drugs are often overlooked. The commonest are acetylsalicylic acid and its derivatives, phenolphthalein, quinine and the iodides (iodized salt).
2. Contact substances: These are too numerous to mention. An intelligent study of the occupation and hobbies of the patient is necessary in each case suspected of belonging in this group.
3. Infections: (a) Focal infections in the sinuses, gallbladder or appendix, not frequent causes. (b) Infections caused by epidermophytosis, one of the commonly undiagnosed causes. A close inspection of the toes with the finding of definitely active lesions of a ringworm infection may lead to the presumptive cause. The added proof required is for the urticaria to disappear with the successful clearing of the ringworm infection.
4. Parasites: (a) Scabies may occasionally cause urticaria. (b) The stools should be examined, especially in the presence of diarrhea or other gastro-intestinal complaints. Freshly passed stools or mucus from the intestine may be necessary in some of the suspected but rare causes of urticaria (amebiasis). An unusually high blood eosinophilia may suggest stool examinations.
5. Endocrine dysfunction: This may be a cause of urticaria. It is not as common a cause in males as in females. Thyroid dysfunction, usually hypothyroidism, but possibly also hyperthyroidism, may be a cause of the condition.
6. Physical causes: Light (urticaria solare). Heat. Cold. Trauma: This (urticaria factitia) was probably an aggravating factor during the fourth attack. The physical causes are considered by some authorities as frequent primary causes of urticaria. Others consider them usually as secondary, or factors that aggravate an attack in the presence of other primary causes.

7. Psychogenic causes: Possibly the most likely group into which such a patient falls is the "ingestant" group. Drugs should be carefully ruled out as a cause. Foods may then be studied by intradermal tests. (Scratch tests rarely work. Intradermal tests react in from 25 to 50 per cent of the cases.) Positively reacting foods should be completely eliminated from the diet. It may be necessary to go further into the allergic study by using the method of diet diaries. (Study by the elimination diet does not fit this case because of the infrequency of the attacks.) A study should be made of foods eaten for twenty-four hours before the onset of an attack and especially during the meal preceding the attack to see whether any food is sufficiently unusual to be suspected. Should these measures fail, the worker may resort to leukopenic index studies of suspected foods when skin tests are of no aid. The technic has been described in several recent articles by Warren T. Vaughan on this subject (*J. Allergy* 5:601 [Sept.], 6:78 [Nov.] 1934, 421 [July] 1935; *J. Lab. & Clin. Med.* 21:1278 [Sept.] 1936).

TREATMENT OF SYPHILIS

To the Editor:—A white woman, aged 25, consulted another physician in April 1931 for a blood Wassermann test following a suspicious contact and before any symptoms had appeared. The reaction was positive and nearsphenamine therapy was instituted. One year later, after thirteen intravenous injections, with appropriate rest periods, the blood Wassermann reaction was negative. Because of some sort of idiosyncrasy to nearsphenamine, that drug was discontinued, and a bismuth compound was started. Between 1932 and the present time the patient has received 130 bismuth injections (deep, intragluteal) and seven of colloidal mercury sulfide by the same route. The patient has had no complaints at any time, and the blood Wassermann reaction has been persistently negative. It is felt that the initial test on the blood was correct because it was repeated twice thereafter before treatment was begun. Will you please comment on (1) whether this patient has received enough antisyphilitic treatment to be considered cured, (2) whether the disease process may be considered permanently arrested, and (3) whether mercuric therapy should be continued and a lumbar puncture for examination of the cerebrospinal fluid done in spite of the absence of symptoms. Please omit name.

M.D., Florida.

ANSWER.—1. The patient has not received what is now considered the minimum amount of treatment necessary to cure a patient with early syphilis. However, patients do not all respond alike to the prescribed number of injections, because in a few cases cure is obtained with less than the recommended amount, while in others two or three times this amount of treatment fails to produce cure. From the information given in the inquiry it appears that the Wassermann reaction has been negative for approximately five years, and if the spinal fluid is also negative the patient may be placed in the "cured" group.

2. Accordingly, the disease process may be considered arrested provided the spinal fluid is negative. Nevertheless, as this young woman is still in the child bearing age, it would be advisable to warn her of the necessity of undergoing further treatment should she become pregnant. The Cooperative Clinic Group studies have shown that in 17 per cent of the women with latent syphilis and negative blood serologic reaction syphilis has interrupted the pregnancy or resulted in the child's having the disease. Hence adequate treatment is indicated throughout the pregnancy even though the patient had sufficient treatment before the conception to render the reaction negative.

3. It is urged that the patient's spinal fluid be examined now although the reaction on the blood is negative and she is asymptomatic. If the spinal fluid test is negative, no further treatment is necessary, whereas if the report is positive, specialized treatment will be warranted.

RENAL GLYCOSURIA

To the Editor:—A man, aged 26, in good health, consulted me because of a positive urinary sugar. This condition was first noticed at least six years ago, at which time he was turned down for insurance. There are no symptoms whatever of diabetes mellitus. The urine shows dextrose in about 50 per cent of the specimens, while the other 50 per cent are negative. The highest recorded amount of dextrose has been 0.4 per cent. In November 1934 the blood sugar, on a fasting stomach, was 86.2 mg. per hundred cubic centimeters of blood. More recently the fasting blood sugar was 100 mg. and the urinary sugar was negative. Two and one-half hours after 100 Gm. of dextrose by mouth, the blood sugar was 64.5 mg. and the urinary sugar 3 plus. I would appreciate your opinion as to the significance of these observations and whether or not this patient should be classed as a true diabetic or one with a renal glycosuria. Please omit name.

M.D., Tennessee.

ANSWER.—The range of the normal fasting blood sugar is from 80 to 120 mg., with an average of 100 mg. per hundred cubic centimeters of blood. More recent modifications by Folin and by Benedict give results from 20 to 30 mg. lower.

Any glycosuria in a patient with a fasting blood sugar below 110 mg. is probably unimportant and not diabetic. Values up to 140 mg. may be obtained in acute infectious diseases, especially pneumonia, focal infections, hypertension and arthritis. Variations with values slightly above normal may occur in disorders of the ductless glands (thyroid, pituitary) other than the islets of the pancreas.

Mild diabetes is usually associated with fasting blood sugar from 150 to 250 mg., while the more severe types show between 250 and 600 mg. or higher. An elevation of long duration is characteristic of diabetes; a quick rise and decline are characteristic of hyperthyroidism, acromegaly and hyperadrenalism.

Sugar is usually eliminated by the kidneys when the blood sugar reaches from 160 to 180 mg., except in some cases of renal disease. In normal persons the blood sugar seldom rises above 140 mg. after an average meal. After excessive sugar intake an alimentary glycosuria may occur in a normal person.

Renal glycosuria is characterized by a normal blood sugar and usually less than 1 per cent of sugar in the urine. The sugar in the urine does not vary much with the amount of

carbohydrate ingested. Most cases of renal glycosuria remain benign; there is often a hereditary tendency. After a number of years, diabetes develops in a few cases.

A fasting blood sugar above 120 mg. per hundred cubic centimeters with glycosuria indicates diabetes. The maximum normal blood sugar in a sugar tolerance test (ingestion by an adult of 100 Gm. of dextrose) should not exceed 180 mg. at one hour and should drop to 140 mg. at two hours. In diabetes mellitus the curve shows over 150 mg. in two or three hours. A fasting blood sugar below 120 mg. with a rise to 200 or over after one hour, and return to 120 or lower in two or three hours, suggests hyperthyroidism or hyperpituitarism.

When a low renal threshold can be demonstrated as in the case cited, with a fasting blood sugar of 86.2 mg. and return to 64.5 mg. in two and one-half hours, the glycosuria must be considered benign. When there is a rise to an abnormal height after the ingestion of 100 Gm. of sugar, one must be more cautious. A diabetic curve is abnormally high throughout. The patient does not have true diabetes; he has a so-called renal glycosuria. A sugar tolerance test with one sample of blood before and other samples one, two and three hours after ingestion of 100 Gm. of dextrose should be done.

USE OF TRUSS IN HERNIA

To the Editor:—There has been some dispute as to the value of a truss in a femoral hernia. Should a man with a femoral hernia be advised at all to wear a truss? If a truss is worn is there any possibility of cure, such as might occur in an indirect inguinal hernia? Please omit name.

M.D., New York.

ANSWER.—One having a femoral hernia should be advised not to wear a truss but to be operated on unless there is some strong contraindication, such as a poor operative risk.

In any irreducible hernia a truss should not be advised. Conditions are somewhat different in a reducible femoral hernia from those in an indirect inguinal hernia, in which a properly fitted truss pad may be placed over the internal ring. Adhesions may form with clinical cure in a child or adolescent, but a certain number may recur at a later period if the truss is taken off.

When the truss pad is placed over the external ring in an inguinal hernia, the viscera may be prevented from coming out but no cure will result. Similarly, the use of a truss in a femoral hernia may prevent the hernia from coming out but owing to the strong Poupart ligament it is impossible to compress the femoral canal and obliterate it. If it should be attempted, the underlying blood vessels might be damaged and a thrombophlebitis or thrombus formed.

It is possible by means of a small downward steel extension to a spring truss frame to hold a pad over the femoral canal and to maintain some pressure. It is difficult to keep a constant pressure unless one is particularly fortunate in the mechanical fitting of the truss, which is difficult. The usual result is that the pad does not keep the hernia from coming out under ordinary exercise or working conditions.

When a hernia is not completely reduced, adhesions of the omentum or bowel are likely to form in the sac with incarceration, which prevents complete reduction.

A femoral hernia is rarely continuously held up with a truss; consequently there is frequent danger of strangulation.

COMBATING SNAKE BITE

To the Editor:—Please inform me of the most practical means for combating snake bite in Central American countries, specifically the republic of Honduras. What commercial kit, for travel, can be recommended and are there any antivenom serums that do not deteriorate if not refrigerated or kept reasonably cold? Please omit name.

M.D., Virginia.

ANSWER.—There is one efficient and now well tested method of treating the bite of our pit vipers—moccasins, copperheads and rattlesnakes—and that is (1) the immediate shutting off of the lymphatic circulation by a ligature, not too tight, around the extremity, leg, finger or arm, immediately above the swelling from the hemolyzed extravasated blood; (2) cruciform incisions through the skin at the fang punctures, with further similar incisions about three-fourths inch apart wherever there is any swelling, and (3) suction applied to such incised areas for about half an hour to extract the laked blood with the venom. If the swelling extends, the ligature should be placed higher up and the incisions and suction continued, the latter for at least twenty minutes out of every hour so long as swelling persists. This vital performance is sometimes facilitated by injecting a mild saline solution into the tissues to promote the outflow. Where much of the poison has been absorbed

and the patient is profoundly affected, antivenin may be useful, but it must be given in far greater doses than heretofore advocated; that is to say, five, ten and fifteen ampules. A single ampule is of no use. Credit for this new and wonderfully efficient method of treatment is due Dr. Dudley Jackson of San Antonio, Texas. The simple extraction outfit can be secured from the Flack Drug Company of San Antonio or from sundry other firms.

If the patient is bitten by a coral snake, such a method would not be effective unless applied at once after shutting off the circulation temporarily; this is conjectural. There is no other remedy.

RECURRENT PYREXIA AFTER LAPAROTOMY

To the Editor:—A woman, aged 36, married, with one child who is 7 years of age, had a left-sided nephrotomy sixteen years ago with no serious illness up to the present time. In the middle of February 1936 she noticed that she had a fever. I saw her in my office March 5, complaining of (1) headache, either two days before or after menses or half-way between, (2) backache, (3) pain in the lower part of the abdomen, (4) pain in the right groin, (5) pain in the chest, usually before the menses, and (6) fever for the past two weeks. Physical examination revealed blood pressure 114 systolic, 70 diastolic; pulse 74; temperature 99.1; heart normal; chest clear; throat normal. There were two decayed teeth (left lower molars). Pelvic examination revealed marked inflammation of both tubes, retroversion of the uterus and tenderness over McBurney's point. A diagnosis of pelvic inflammatory disease and subacute appendicitis was made. March 25 a laparotomy was done, consisting of bilateral salpingectomy, appendectomy and a ventral suspension. Recovery was uneventful, and the patient left the hospital with practically a normal temperature. She still continues at this date to have a fluctuating temperature. Her blood count is normal; repeated urinalyses give normal results; tests for tubercle bacilli in the urine are negative; roentgenograms and physical examinations of the chest are negative for tuberculosis, and roentgenograms of the kidneys are normal. The patient is 5 feet 5 inches (165 cm.) tall and weighs 86 pounds (39 Kg.) with her house clothing on. She feels well in every respect. She is now rid of all her complaints, except for the fever. Kindly omit name.

M.D., Pennsylvania.

ANSWER:—If one assumes that all grossly diseased pelvic organs were removed at the time of the laparotomy and that pelvic examination is negative at present, it seems entirely improbable that pelvic infection is responsible for the present low grade fever. Cervicitis alone almost never produces fever; chronic endometritis and metritis are rarities; oophoritis ordinarily manifests itself by pain, tenderness and menstrual dysfunction, none of which the patient has. Long continued postoperative fever should always bring to mind the possibility of an overlooked sponge. Since the correspondent has investigated the common sources of fever, the problem now resolves itself into a study of obscure chronic pyrexia. This subject has been discussed and references were cited by THE JOURNAL, Sept. 7, 1935, page 803, and Sept. 28, 1935, page 1059. Among the possibilities to be considered further are undulant fever, rheumatic infection, endocarditis, focal infections (nasal sinuses, mastoid, middle ear, teeth, gallbladder), syphilis, Hodgkin's disease, tuberculosis, hyperthyroidism and psychogenic fever. It is essential that a reliable chart be kept showing the temperature three or more times a day over a period of several weeks. If no diagnosis can be reached, a regimen designed to increase the patient's weight will probably benefit her and may incidentally lead to a normal temperature.

"MISTER" OR "DOCTOR" AS ADDRESS FOR BRITISH SURGEONS

To the Editor:—Would you kindly, without publishing my name, publish in Queries and Minor Notes the reasons surgeons are addressed as "Mister" in England and physicians as "Doctor." Possibly the distinction is not as clean cut as I surmise, but I should like to know the origin of the difference.

M.D., Duluth, Minn.

ANSWER:—The terms Doctor and Master were interchangeable and of equal value in the earliest medieval universities. In process of time the faculties gave the degree of Doctor and Bachelor. These continued but the Master in Surgery dropped out, partly because there were no candidates and partly because surgery came to be looked on as an inferior branch divorced from physic. Graduates who practiced as what would now be called surgical consultants were content to use the term magister. Peter Lowe of Glasgow was always known as Maister Peter Lowe at the end of the fifteenth century. John Arderne, the father of English surgery, had gone one better 200 years earlier, for he began as John Arderne, became Maister John Arderne and ended, when he settled in London, as Maister John de Arderne. In the seventeenth century a doctor of medicine was a university graduate like Dr. Radcliffe or Dr. Mead. We

know from the novelists of the eighteenth century that the term was still in restricted use, for when a medical man is called in he is surgeon So and So, Mr. Blank or the Apothecary, and all were treated with scant respect. Territorial restrictions were abolished in the nineteenth century and many Scottish graduates settled in England. They usually held the M.D. degree and after their arrival the use of the word Doctor became generic and appeared to be so desirable that some of the English licensing bodies allowed their members to use it as a courtesy title. The term Master was retained by consulting surgeons as a continuation and contraction of Magister; when it is used by a general practitioner it is a term of respect, a mere variation of the older form of Measter, just as the last generation spoke of Mrs. as Mistress So and So, but except for surgeons, Mr. is rapidly being replaced by Dr.

TREATMENT OF NEUROSYPHILIS

To the Editor:—Paralysis of the oculomotor nerve has occurred, as evidenced by ptosis of the lid (left eye), inability to move the eyelid medially, and dilatation of the pupil. This results in double vision unless one eye is closed. It came on suddenly, Oct. 18, 1936. Syphilitic infection occurred over twenty years ago; the patient is now 60 years of age. Some intravenous treatment was given ten years ago. Vision in both eyes was not good for many years prior to the present condition. There has also been some tremor of the hands but no disturbance of gait or mental condition. To date this patient has been getting ordinary treatment with neosarsphenamine, a bismuth compound and potassium iodide since the onset of the acute eye muscle paralysis. I wish to know whether it is advisable to give tryparsamide. If it is or is not given, what is the outlook for any improvement in the paralysis of the eye muscles?

G. L. RATHBUN, M.D., New Windsor, Ill.

ANSWER:—When an oculomotor palsy does not clear up in from six to eight weeks, it is rather unlikely that it will do so later, irrespective of the type of treatment used. Tryparsamide is unquestionably more efficacious in treating syphilis of the central nervous system than either neosarsphenamine, bismuth compounds or potassium iodide and would be definitely indicated in this case except for the possibility of damage to the optic nerve. There is a difference of opinion as to the advisability of using tryparsamide in optic atrophy. It is wiser, however, in most instances not to attempt to use this drug if atrophy has occurred.

In the case under discussion there is no evidence of optic atrophy, but rather evidence of some disturbance in the media. As arsphenamine is more likely to cause disturbances of the media than does tryparsamide, it would seem reasonable to switch to the latter drug. This should be given, however, in small doses, e. g., 1 Gm., for some time, and during this period the eyes should be watched very carefully from the standpoint both of subjective and of objective changes.

EFFECTS OF CLIMATE, PARTICULARLY SEASHORE; ON HYPERTENSION

To the Editor:—I have noticed that several of my patients who have spent a long time at the seashore returned with a higher blood pressure than when they left the city. Recently a patient of mine, aged 60, suffering from diabetes mellitus, whose blood sugar has been reduced from 450 mg. to 220 mg. and who felt very well under insulin treatment and whose blood pressure was 165/110 for about two years, returned from a three months vacation with a blood pressure of 230/120. The insulin treatment was continued during her vacation. Has it also been your experience to find that the salty air and absolute lack of exercise has the same effect on a patient?

SIMON STEINBACH, M.D., New York.

ANSWER:—So far as is known, the "salty air" of a seashore resort has no appreciable effect on the arterial tension one way or the other. Absolute lack of exercise, on the other hand, may be a significant factor. H. O. Gunewardene (High Blood Pressure and Its Sequelae, Baltimore, William Wood & Co., 1935) has emphasized that physical inactivity plays an important part in hypertensive arterial disease in India. Hypertension rarely occurs among rickshaw runners, who take violent exercise with long and exhausting hours, whereas it is notably common among certain social groups who habitually lead sedentary lives with overeating. It is also conceivable that this and similarly affected patients tend to overeat while residing at the seashore. Anxiety, worry and mental fatigue also may be factors; it is not justifiable to assume that, because the stay is called a vacation, mental relaxation necessarily follows. Careful questioning of these patients as to sources of annoyance, irritation or fear is advisable before one can attribute the change to climatic conditions. For example, it has been observed that the similar episodes finally proved to be due to the fact that the patient had been playing cards for stakes beyond her means.

at a mountain, not seashore, resort. Changes in environmental temperature may be associated with changes in the arterial tension without a doubt; cold causes the pressure to rise and hot weather is associated with a drop. In isolated instances such exacerbations as were noted with the patients returning home from the sea may be due to transient infections while away. The arterial tension, notoriously labile even in normal persons, is always more readily raised than lowered in those with hypertensive arterial disease. In an individual constitutionally vulnerable, any number of factors may precipitate exacerbations or recurrences of the hypertension. It is primarily for this reason that hypertensive arterial disease must be considered as possibly controllable but not curable.

LOW RESIDUE AND HIGH RESIDUE DIETS IN HEMORRHOIDS

To the Editor:—In the past it has been taught that high residue, bulky diets are indicated in the treatment of constipation. However, one of my patients had a hemorrhoidectomy a few months ago and she tells me that she was advised to continue a smooth diet indefinitely. She states also that her physician told her that a low residue, high protein menu will act as a stimulant to peristalsis. Which of these views is the correct one?

J. B. STOKES, M.D., Ottawa, Ill.

ANSWER.—The balanced American diet calls for a proper adjudication of residue and nonresidue foods. It has been amply proved and substantiated that the continued use of a bland diet over a long period commonly results in an intolerance of the intestinal tract for the residue bearing foods later infiltrated into the diet.

The use of high residue, bulky diets for the treatment of constipation is still indicated when a state of atonicity is the etiologic factor. However, in cases of constipation of spastic origin such a diet is not only contraindicated but is capable of increasing the presenting condition.

In the light of present knowledge it is not reasonable to suppose that a low residue, high protein menu will act as a stimulant to peristalsis. It must be borne in mind, however, that a high protein menu would of necessity involve the ingestion of approximately 100 Gm. or more of protein, derivable mainly from meat, fish, cheese and eggs. It is barely possible that the fiber contained in large quantities of meat would provide sufficient residue to act as an intestinal stimulant.

INDIGESTION AND TUBE FEEDING

To the Editor:—In handling psychotic patients who refuse food I am in the habit of giving them a feeding by stomach tube either once or twice daily. I find that often, as a result of this tube feeding, patients develop diarrhea and I am anxious to learn whether there is something wrong with the formula that I use or whether there is any particular ingredient that is not used properly or used to excess. The tube feeding formula consists of four eggs, 4 ounces of butter, 2 ounces of sugar and 20 ounces of milk. In addition to this feeding, which is approximately 1 quart, 1 ounce of cod liver oil and 1 ounce of tomato juice and several grains of concentrated yeast are poured down the tube. I estimate that the total value of such a feeding is about 2,000 calories. In cases in which I feel that 1 quart is too much to give at one feeding I divide the amount into two feedings. I would appreciate an opinion from you as to whether there is something in this formula that causes the diarrhea. Any suggestions along this line will be appreciated. M.D., New York.

ANSWER.—A rough evaluation of the feeding stated reveals the administration of approximately 175 Gm. of fat, yielding about 1,600 calories, to the feeding.

It would appear evident that this amount of fat in a total caloric yield of about 2,300 calories is entirely too high.

It appears most likely that the proportionate mass of fat administered is probably responsible for the intestinal irritative symptoms.

OPACITY OF CORNEA

To the Editor:—I have as a patient an infant, 4 months of age, with a congenital malformation of the left eye which, as far as I can tell, is a complete corneal opacity. The child has been seen by a competent ophthalmologist, who told the mother that there was no hope of vision but that a glass eye could be inserted later because of the disfigurement. If the eye is useless, could not the disfigurement be corrected by other means, as by tattooing a pupil? Has a glass pupil, similar to a contact lens, ever been used? Please give references in answer. M.D., New Jersey.

ANSWER.—Congenital opacity of the cornea may vary from merely a thin leukoma to the complete opacity here described. The condition has been studied extensively by von Hippel, Peters, Clausen, Fuchs, and others (see *Kurzes Handbuch der Ophthalmologie*, vol. 4) and there is no unanimity of opinion as to the cause. In later life, colored tattooing by the Holth

method might be successful, but the suggestion of using a thin artificial glass shell eye over the eyeball is the most practical. A "glass pupil similar to a contact lens" is out of the question.

HEREDITARY KERATOSIS PALMARIS ET PLANTARIS

To the Editor:—What, if anything, can I do for a case of congenital and hereditary keratosis palmaris et plantaris? My patient, a girl aged 6, is of the third generation to suffer from this malady, her father and his mother being likewise troubled. Two other children, a brother and sister, do not have the disease. Salicylic acid ointments and other remedies have helped little, if any. I have not employed constitutional treatment of any kind. Are the x-rays of any benefit? If so, what dosage should be employed? N. H. FARRELL, M.D., American Falls, Idaho.

ANSWER.—Complete relief in congenital and hereditary keratosis palmaris et plantaris is rarely accomplished. The patient can be made comfortable and the skin kept soft by treatment. The use of from 3 to 10 per cent salicylic acid in petrolatum, together with prolonged maceration of the parts in water and rubbing with bland soaps, is of value.

In such cases in adults associated with low basal metabolic rates the use of thyroid by mouth is sometimes of value in addition to other treatment. X-rays have been used with beneficial results in these cases. Response to the latter is variable, however, and in view of the recurrence of the condition they must be used with great caution to prevent the likelihood of a radio dermatitis supervening. Single suberythema doses, cautiously given with a well calibrated machine may be used.

In a child, however, it would probably be wiser to give a fractional x-ray exposure of from 50 to 75 roentgens at five to seven day intervals for four to six exposures. A long rest period should be allowed before repeating the dose.

SAFETY OF THE SHOE-STORE FLUOROSCOPE

To the Editor:—Your answer on "Safety and Utility of Fluoroscopy" (*THE JOURNAL*, March 27, p. 1134) brings forth the question of the safety of the shoe store fluoroscope, such as that used by the local shoe firm to which I send my patients. While the shoe people find these instruments extremely useful in checking fittings, especially for children, I have wondered with regard to the safety with which they may be employed. Is there any way to determine the escape of dangerous irradiation?

M.D., Michigan.

ANSWER.—Shoe store fluoroscopes have less value in connection with the fitting of shoes than may appear on the surface. Their value is chiefly commercial, because they make a considerable impression not only on the customer but also on the dealer. As for their safety, exact data are not available. It is probable that the time required for the average fitting is short enough to make any real danger slight. Nevertheless, the possibility of danger is there. To determine the margin of danger present would require accurate physical measurements which to our knowledge have not been made.

DERMATITIS HERPETIFORMIS

To the Editor:—A man, aged 50, has a chronic dermatitis, which began three years ago. A diagnosis of dermatitis herpetiformis was made by me and confirmed by a well known dermatologist. The patient has no other complaint, there are no obvious foci of infection, and his general physical examination is negative except for the skin lesions. Treatment has consisted of various lotions of the calamine mixtures with solution of coal tar and other local treatment of similar nature, sodium cacodylate both intramuscularly and intravenously, neoarsphenamine intravenously, a series of autogenous colon vaccine, and many lotions and ointments prescribed elsewhere. Realizing how persistent and practically incurable this condition is, I nevertheless would appreciate any further information as to subsequent treatment that might benefit this man. Please omit name.

M.D., Kansas.

ANSWER.—The response to therapy in dermatitis herpetiformis is variable. All foci of infection should be ruled out, including the prostate. The use of dicalcium phosphate by mouth with vitamins A and D is of value. Calcium may also be given by intramuscular injections as calcium gluconate. The intramuscular injections of 10 cc. of the patient's own blood (auto-hemotherapy) at intervals of from three to five days is of value in many of these cases. Arsenic may be employed again in the form of solution of potassium arsenite, beginning with small doses and gradually increasing to the physiologic limit. The urine should be carefully watched during the arsenic administration. Salicin in 1 Gm. dose, thyroid and antipyrine have been employed. X-ray exposure of the spinal region was used with success by H. R. Foerster (*Arch. Dermat. & Syph.* 25:256 [Feb.] 1932).

Locally, the use of lotions containing phenol or menthol, or ointments containing sulfur is recommended. Soothing effects

are further obtained by alkaline, bran or oatmeal baths, or the use of a bath to which from 4 to 6 ounces of solution of sulfated lime (Vleminkx's solution) has been added.

A simple diet with moderate exercise and regular habits of living, together with nervous and emotional calm, is essential to successful therapy.

SENSITIVITY TO ARSPHENAMINE

To the Editor:—I have a patient with syphilis who is sensitive to arsenic. I have tried nearsphenamine, mapharsen and bismarsen and all produce a severe dermatitis. Sixteen bismuth intramuscular treatments have not changed the 4 plus Kahn reaction. Can you suggest any other arsenical that will not produce a dermatitis? If not, what would you advise as to treatment? Please omit name. M.D., Illinois.

ANSWER.—This patient is apparently intolerant of arsenic and further effort should not be made to give arsphenamine or any of its various modifications for some time to come. It would be advisable to examine the spinal fluid, to check the cardiovascular system for evidence of syphilitic aortitis, and to seek other manifestations of syphilis in the viscera or mucous membranes as the cause of the persistently positive Wassermann reaction before pushing ahead with treatment. If these examinations are negative, injections of a bismuth compound, at least two courses annually of twenty injections each, should be given for a period of four or five years.

As data with regard to the sex and age of the patient, duration of the infection, amount of the previous treatment, and symptomatology were omitted from the inquiry, further suggestions with regard to treatment are not possible. Occasionally patients are encountered who are sensitive to arsphenamine but who after a year's rest from treatment with it are able to tolerate the drug in small doses. The status of the syphilis and the need for drastic treatment are the factors that determine the need for further efforts at arsphenaminization in such cases.

SKIN CHANGES AFTER RADIUM TREATMENT

To the Editor:—A woman, aged 50, complains of much pain and discomfort at the site of x-ray and radium (?) treatment nine years ago for a goiter. The treatment was given both before and after thyroidectomy. She does not know whether it was malignant or not. The skin in this area is roughened, telangiectatic and adherent over the left sternomastoid muscle. No tumor is palpable. Various ointments have been used in order to make it feel more flexible and give relief to the pulling sensation and pain, but without relief. Any suggestion will be appreciated. Please omit name. M.D., Ontario.

ANSWER.—The palliative treatment of atrophy and telangiectasis of the skin following intensive x-ray or radium treatment is unsatisfactory. Avoidance of further irritation and the application of ointments constitute the only methods. Excision of the diseased skin followed by plastic repair must be considered. The decision as to the indications for surgery and the execution of the procedure are exceedingly difficult and should be entrusted only to one who is highly expert in this field. In the case cited, the location and extent of the lesion probably contraindicate surgery.

PSORIASIS OF FINGER NAILS

To the Editor:—I have a patient who has psoriasis of the finger nails. He has been to many skin specialists, receiving from time to time treatment containing salicylic acid for application to the nails, also light and x-ray treatments, and special diets. He has received best results from the x-ray and light treatments, but they require a long time and are very expensive. I should like to know whether you have any special treatment for this condition. I know it is chronic and it will take a long time before it heals. Kindly omit name. M.D., Pennsylvania.

ANSWER.—Psoriasis of the finger nails is much more resistant to therapy than psoriasis of the skin. The treatment employed is usually a modification of that used on the skin. The scraping of the nail with a glass slide to remove surface irregularities and debris, and the local application of an ointment is a most effective method of treatment. A 6 per cent salicylic acid and 6 per cent ammoniated mercury, or a 0.5 per cent dihydroxyanthranol ointment may then be rubbed into the nails. Roentgen therapy, while effective, must be used cautiously in order to obviate the occurrence of a radiodermatitis and other sequelae in the skin surrounding the nail. Restriction of fats and proteins in the diet has been recommended. The use of vitamin D and calcium by mouth, and the use of salicin, 1 Gm. in 30 cc. of peppermint water three times daily, is of value. Subcutaneous injections of sodium cacodylate, the use of sodium thiosulfate intravenously and the use of nonspecific therapy, such as whole milk intravenously, and autohemotherapy may be

further adjuncts to local therapy. In the latter procedure, 10 cc. of the patient's blood is given by intramuscular injection at intervals of from five to seven days.

MULTIPLE SCLEROSIS

To the Editor:—A white woman, aged 21, has a brother, aged 30, who has had multiple sclerosis for the past ten years. An incomplete and rather unsatisfactory cursory study of the family tree reveals no other neuropathic cases. Is marriage in her case advisable? How great are the possibilities of her or her children developing multiple sclerosis or another neuropathic condition at a later date? Kindly omit name. M.D., Kansas.

ANSWER.—The etiology of multiple sclerosis is unknown. Heredity may be an important factor. The latter is a congenital predisposition in the cerebrospinal axis which under certain situations becomes activated and the protean signs of multiple sclerosis develop. There are, however, many cases of multiple sclerosis occurring in one member of a family with no abnormalities of any kind in any of the other members. It is suggested that a complete study of the patient's family tree be made. If no other evidence of familial or hereditary disorders is found, the possibility of the patient's children having multiple sclerosis or other neuropathic states is unlikely.

COST OF SKIN DISINFECTANT SOLUTION

To the Editor:—In THE JOURNAL, February 13, page 577, you published a query and minor note entitled "Solution for Use as Skin Disinfectant." You state that the authors were able to prepare the formula given at \$1.60 a gallon, which is no doubt true, but you neglect to mention that they were using tax free alcohol. I have been preparing a similar formula for a customer but not at \$1.60 a gallon. I have to pay a tax (federal) of \$3.80 a gallon (wine) on nonbeverage alcohol, besides a state tax. WILLIAM H. BROOKE, Lincoln, Neb.

ANSWER.—The statement that the authors (J. A. Vaichulis and Lloyd Arnold, *Surg., Gynec. & Obst.* 61:333 [Sept.] 1935) were able to prepare the solution for \$1.60 a gallon is correct. They did so, however, working in the laboratories of a state university medical school and using tax free alcohol. With a federal tax of \$3.80 a wine gallon on nonbeverage alcohol, and in some states an additional state tax, obviously this solution could not be prepared at the price stated except in an educational institution where tax free alcohol is available.

TESTS FOR BLOOD SUGAR

To the Editor:—I wish to purchase a simple inexpensive outfit for estimation of blood sugar—one that can be used in my office and requiring only a few drops of blood, yet fairly accurate. The Epstein and also the Lamotte outfits have been recommended to me. Which is considered the better one—or do you know of one better than either of these two at about the same price? The Epstein is priced at \$17.50 and the Lamotte at \$24. J. STREET BREWER, M.D., Roseboro, N. C.

ANSWER.—Either of the instruments mentioned should prove quite satisfactory for the purpose. No other device of a similar nature should prove materially superior to these instruments.

The LaMotte equipment has greater flexibility and can be more easily expanded to accomplish a greater variety of work, but if used only for fairly accurate blood sugar determinations either should do very well.

EXCISION FOR PIGMENTED MOLES

To the Editor:—A girl, aged 15 years, has a number of brown (small) areas of pigmentation over her face. Some of them appear like soft, flat moles. What is the best way to remove them without too much scarification? Is removal by means of fulguration with the electric needle or electrocoagulation with the usual diathermy machine dangerous because of rendering the areas of pigmentation malignant? Please omit name and address. M.D., Maine.

ANSWER.—Presumably the lesions mentioned are pigmented moles. Most specialists believe that it is better to let such lesions alone or to remove them by excision. Electrodesiccation and electrocoagulation might fail to destroy all the cells, and these methods are likely to produce disfiguring scars.

ETIOLOGY OF TABES

To the Editor:—Is there a form of tabes that is nonsyphilitic? FELIX S. MARTIN, M.D., Beaumont, Texas.

ANSWER.—Tabes is always of syphilitic etiology. There are pseudotabetic syndromes caused by a number of other diseases that involve the posterior columns. However, tabes itself involves more than the posterior columns and is always syphilitic.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Basic Science. Tucson, June 15. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

ARKANSAS: Medical (Regular). Little Rock, June 17-18. Sec., Dr. A. S. Buchanan, Prescott.

CALIFORNIA: Reciprocity. San Francisco, May 19. Examinations. San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: Basic Science. New Haven, June 12. Prerequisite to station examination. Address State Board of Healing Arts, 1895 Yale Station, New Haven. Medical (Homeopathic). Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. Medical (Regular). Hartford, July 13-14. Endorsement. Hartford, July 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Basic Science. Washington, June 28-29 (probable dates). Medical. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June 9-10. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

ILLINOIS: Chicago, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: Iowa City, June 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Augusta, July 6-7. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Medical (Regular). Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. Medical (Homeopathic). Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 3-5. State Health Commissioner, Dr. H. F. Parker, State Capitol Bldg., Jefferson City.

NEBRASKA: Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Columbus, June 1-4. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: Medical. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. Basic Science. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 17-18. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 21-23. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 21-23. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WASHINGTON: Basic Science. Seattle, July 8-9. Medical. Seattle, July 12-14. Dir., Department of Licensure, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Fairmont, July 12. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Basic Science. Milwaukee, June 5. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. Medical. Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS
SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, May 8, page 1671.

California Reciprocity and Endorsement Report

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports 34 physicians licensed by reciprocity and 14 physicians licensed by endorsement from Jan. 2 through Feb. 10, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine.....	(1933)		Colorado
George Washington University School of Medicine.....	(1933)		Ohio
Howard University College of			Dist. Colum.
Hahnemann Medical College and			N. Dakota
Northwestern University Medical			Illinois
Rush Medical College.....	(1932)		Illinois
Keokuk Medical College, Iowa.....	(1908)		Iowa
State University of Iowa College of Medicine.....	(1925), (1927), (1930)		Iowa
Tulane University of Louisiana School of Medicine....	(1935)		Alabama
Tufts College Medical School.....	(1935)		Maine
University of Michigan Medical School.....	(1931)		Michigan
St. Louis University School of Medicine.....	(1933)		Missouri
Washington University School of Medicine.....	(1921)		Oklahoma
Creighton University School of Medicine.....	(1922), (1930)		Nebraska
(1931) Utah			
John A. Creighton Medical College.....	(1908), (1915), (1917)		Nebraska
University of Nebraska College of Medicine.....	(1932), (1934)		Nebraska
Columbia Univ. College of Physicians and Surgeons....	(1921), (1930)		New York
Long Island College Hospital.....	(1924)		New York
New York Homeopathic Med. Col. and Flower Hosp....	(1932)		New York
Syracuse University College of Medicine.....	(1932)		New York
University of Rochester School of Medicine.....	(1933)		New York
Woman's Medical College of	(1926)		Ohio
Baylor University College of			Texas
University of Texas School of			Texas
University College of Medicine, Virginia.....	(1897)		Alaska
University of Toronto Faculty of Medicine.....	(1926)		New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine.....	(1929), (1930)		U. S. Navy
College of Medical			M. Ex.
Stanford University			M. Ex.
Northwestern Univer.			M. Ex.
Harvard University Medical School.....	(1932)		N. B. M. Ex.
University of Minnesota Medical School.....	(1931)		U. S. Navy
Long Island College Hospital.....	(1925)		N. B. M. Ex.
Duke University School of Medicine.....	(1934)		N. B. M. Ex.
University of Oklahoma School of Medicine.....	(1930)		U. S. Navy
Jefferson Medical College of Philadelphia....	(1924), (1932)		U. S. Navy
Medical College of Virginia.....	(1915)		U. S. Navy

Missouri Reciprocity and Endorsement Report

Dr. H. F. Parker, State Health Commissioner, reports 11 physicians licensed by reciprocity and 2 physicians licensed by endorsement at the meeting held in Jefferson City, Jan. 30, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles.....	(1912)		Oklahoma
Northwestern University Medical School.....	(1904)		Kansas
University of Kansas School of			Kansas
St. Louis University School of			Alabama
Washington University School of			Kansas
Eastworth Central Medical Colle			Kansas
Creighton University School of			Kansas
University of Nebraska College			Nebraska
University of Oklahoma School			Oklahoma
Hahnemann Medical Col. and I			Penna.

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Northwestern University Medical School.....			(1934) N. B. M. Ex.
Cornell University Medical College.....			(1934) N. B. M. Ex.

North Dakota January Examination

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral, written and practical examination held in Grand Forks, Jan. 5-8, 1937. The examination covered 13 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School...	(1934) 90,	(1936)	83
Tufts College Medical School.....		(1935)	80.2
University of Minnesota Medical School....	(1925) 82.8,	(1936)	80, 85

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Northwestern University Medical School.....			(1936) N. B. M. Ex.

Book Notices

Artificial Pneumothorax: Experience of the London County Council. By F. J. Bentley. Medical Research Council, Special Report Series, No. 215. Paper. Price, 1s. 6d. Pp. 94, with 5 illustrations. London: His Majesty's Stationery Office, 1936.

Bentley has compared 677 persons treated by artificial pneumothorax with 3,329 treated by bed rest and other measures in the absence of collapse therapy. The average time over which artificial pneumothorax treatment was continued was 18.8 months, but of the patients alive at the end of the study the treatment had been continued over a period of approximately three years. Two hundred and sixty-six of the 677 patients treated by pneumothorax were followed for a minimum period of three years and 411 of the patients were followed for a period of five years, while the 3,329 treated without collapse therapy were followed for a period of five years. The 411 observed for five years showed a gain in the number alive of 19.8 per cent at the end of five years over those treated conservatively. Of the total 677 treated by artificial pneumothorax, in 267 the collapse was incomplete and of this number only 50 per cent were alive at the end of three years. Of the remaining 208 patients with complete collapse 65.9 per cent were alive after three years, while among those who had only unilateral disease 77.4 per cent were alive at the end of three years. Of those who survived in this pneumothorax group, 64 per cent had quiescent disease after five years while only 38 per cent of those treated conservatively were in this stage at the end of five years. The author points out that there is also a definite increase in the working capacity in the pneumothorax group. He observed that the longer disease exists the more likely it is to involve both lungs and the greater the chances of adhesions developing which prevent complete collapse. He is of the opinion that it is unwise to wait too long before instituting artificial pneumothorax and that when the disease is unilateral and tubercle bacilli are found in the sputum the treatment should be considered at once. He is cognizant of the fact that some such patients will control their disease but that too frequently without artificial pneumothorax it tends to advance. He also calls attention to the fact that, if the disease is brought under control without collapse therapy, among those who must do manual work there is an "awful risk" of reactivation within two or three years. Moreover, in patients who do break down by the time treatment is instituted for the second time the disease is usually too advanced for any kind of therapy to be of avail. Bentley states that in 1934 only approximately 10 per cent of the patients being treated for pulmonary tuberculosis were on artificial pneumothorax treatment. He does not believe that this percentage will be definitely increased because of the lack of suitable cases admitted to the institutions. In spite of a review of the literature, he bases his statement on the observation of hospital cases alone, ignoring the case-finding methods now in practice in many sections with its resultant increase in suitable cases for artificial pneumothorax and ambulatory pneumothorax for the early case. However, this study shows that artificial pneumothorax even in the type of case observed by Bentley is decidedly worth while, since 19.8 per cent more so treated survive than among those who are treated by institutional care alone. Its importance lies in further evidence from a hitherto unreported section that pneumothorax constitutes the most valuable single treatment of tuberculosis now extant.

Christian B. Holmes, Man and Physician. By Martin Fischer. Cloth. Price, \$4. Pp. 233, with illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1937.

Here in a beautiful volume as artistically written as it is beautifully printed, Martin Fischer tells the story of the life of Christian Holmes of Cincinnati. The book is not likely to command a tremendous audience and it has the personal qualities that are certain to make it appeal to the audience that was personally interested in Holmes and his accomplishments.

In 1885 Christian Holmes came to the Cincinnati Hospital. From that time on his entire life was devoted primarily to its interests. He was to rebuild it and eventually to make it the great institution which it is today. The life of Christian Holmes is intimately bound also with the story of the Fleischmann

family. The history of all our great institutions is largely the history of the men who live for them. This is particularly true of the medical institutions of Cincinnati. The life of Christian Holmes, as narrated by Martin Fischer, traces the intricate web of politics and financing that was created to meet successfully the conditions that existed. As in other instances, the creation of the institution is only the beginning. Thereafter come the questions of maintenance. It is not sufficient merely to set up certain standards. Thereafter comes the battle against those without ideals who continually attempt to break down standards. These conflicts and struggles made the life of Christian Holmes particularly dramatic. He had frequent opportunities to abandon his projects in Cincinnati for a new career elsewhere, many times perhaps even a greater one; but he preferred to undergo the exactions and vicissitudes of his chosen home. His story includes the building not only of hospitals but also of the medical school and then a successful marriage of the two organizations into a great service and teaching institution.

An exceedingly interesting feature of this remarkable volume are the side-headings on the individual pages, which are aphorisms from the great literature of the world reflecting on the career of the remarkable man whom the book concerns. The volume will be read with interest by every one who has followed the course of medical education and medical development in the United States during the particularly active last quarter century.

L'ostéosynthèse au point de vue biologique: Influence de la nature du métal (étude expérimentale). Par G. Menegaux, chirurgien des hôpitaux de Paris, et D. Odiette, assistant à l'Institut de cancer. Préface du Professeur J. Verne. Paper. Price, 35 francs. Pp. 175, with 71 illustrations. Paris: Masson & Cie, 1936.

For more than two years Menegaux and Odiette have been studying the reaction of bone to various metals, from the biologic point of view, because they have found that rarefying osteitis, subsequent pathologic fracture, and other clinical failures resulted from the use of metal fixation devices in fractures. After performing more than two thousand tissue culture experiments and more than a hundred operations on animals, they feel qualified to declare which metals are desirable for use in bone.

Tissue cultures of fibroblasts and osteoblasts from the chick embryo and fibroblasts from the human embryo (cases of extra-uterine pregnancy) were subjected to the effects of forty different metals and alloys. Careful microscopic studies of the cultures and quantitative analyses were made. In the animal experiments, metal disks were placed under the periosteum, wire loops were placed in and around the bone, and Lane plates and screws of different metals were applied.

The results of these detailed studies lead the authors to state that iron, steel, bronze-aluminum, copper and magnesium have a very toxic effect on bone. They are therefore condemned as unfavorable for bone surgery. If, however, their use is unavoidable they should be removed as soon as they have served their function. Most of the pure metals, the alloys of aluminum, and most stainless steels are moderately toxic in their action on bone. The nontoxic metals are gold, lead and aluminum (all of which are soft in their pure state and not practical to use), and three of the stainless steels (V2A Extra, Nicral D and Platino-Stainless D). The authors condemn plated metal appliances, moreover, because the plating might crack and permit the exposure of the iron or steel base, which is toxic.

The authors discuss the possibility that when two metals are used in the same bone there may be some electrolytic reaction which would be inhibitory to bone growth. However, in none of their experiments could they prove this and they dismiss it as a negligible factor. This is contradictory to the observations of Venable, Beach and Stuck in this country, who have recently demonstrated that the use of appliances of different metals in the same bone induces electrolytic reactions that are destructive to bone.

Despite their extreme care and thoroughness, Menegaux and Odiette have simply repeated the experimental approach and reemphasized essentially the same conclusions as many previous workers in this field. A distinct contribution, however, is the description of a method for growing osteoblasts in hanging

drops wherein the growing cells can be clearly observed and studied experimentally. The book is illustrated with excellent photomicrographs, which are well titled and readily demonstrate the points the authors seek to establish.

Pharmacognosy. By Edmund N. Gathercoal, Ph.G., Ph.M., Professor of Pharmacognosy, University of Illinois College of Pharmacy, and Elmer H. Wirth, Ph.C., Ph.D., Assistant Professor of Pharmacognosy, University of Illinois College of Pharmacy. Cloth. Price, \$7.50. Pp. 852, with 373 illustrations. Philadelphia: Lea & Febiger, 1936.

Pharmacognosy means "the entire knowledge of drugs." Modern pharmacognosy, however, does not include medicinal or pharmacologic action. The drugs discussed in this book are limited to those of plant and animal origin. Synthetics and inorganic drugs, if mentioned at all, are incidental; official chemical substances, however, obtained from crude drugs get considerable attention. The Greek Herbal of Dioscorides (A. D. 512) may be considered the first textbook of pharmacognosy and Dioscorides a teacher of pharmacognosy. In fourteen centuries much water has run over the pharmacognosy mill, and naturally great advances have been made. Up to the seventeenth century the best books on medical botany were still commentaries on the Herbal, which was also the historic source of much of our therapy. Its descriptions were of the gross specimens; today the emphasis is on microscopic structure and chemical, biologic and physical tests. The authors give a list of thirty or more important books on the subject with due credit. It is this scientific spirit, combined with clarity, completeness and modernity, that bespeaks a wide adoption of the book. Pharmacognosy today demands a knowledge of botany, zoology, bacteriology, chemistry, physics and crystallography. The book emphasizes these sciences as applied to pharmacognosy. It is the very extent of these subjects that has restricted the teaching of pharmacognosy in the medical schools. Important in the medical curriculum for centuries, pharmacognosy now receives scant recognition, not because it is underestimated as a scientific discipline but because other subjects of more pressing need have supplanted it. There are, however, times when questions arise in practice, where the physician will want more information on a drug than is given in the Pharmacopoeia, and where this book will furnish the information in a reliable and concise form. Such modern therapeutic agents as vitamins, vaccines and bacteriologic products are discussed. For students of pharmacognosy we know no better book. The style is clear; the descriptions are concise and accurate. The numerous illustrations are excellent. Physicians and general scientists interested in subjects beyond their special fields will find it a valuable source of information. Laboratory workers in pharmacology, chemistry and food and drug inspection work will find it a good reference book.

The Queen Charlotte's Text-Book of Obstetrics. By Trevor B. Davies, M.D., F.R.C.S., F.C.O.G., Gynecological Surgeon, Hospital for Women, Soho, and others. Fourth edition. Cloth. Price, 18s. Pp. 674, with 295 illustrations. London: J. & A. Churchill, Ltd., 1936.

This book, like the three previous editions, was written by the active staff members of the Queen Charlotte's Maternity Hospital. A number of changes and improvements have been made particularly in the chapters dealing with puerperal infection. This is because during the last few years important contributions have been made to the subject of puerperal infection by Leonard Colebrook in the Queen Charlotte's Research Laboratories. The authors have altered their treatment of eclampsia, for they have given up the use of colon lavage, sweating and veratrine. In a series of 841 cases of placenta praevia there were no deaths among the 116 patients who delivered spontaneously, one death among sixty-one cesarean section (1.6 per cent), and much higher maternal death rates for the other forms of delivery. In reviews of two previous editions of this book, it was pointed out that illustrations were reproduced or copied from DeLee's textbook but that no mention was made of this fact. In the present edition proper credit is given to DeLee for the illustrations that were taken from his book. In 1930 an isolation block was opened for the study and treatment of puerperal sepsis. In this block it has been found that 19 per cent of the patients transferred because of fever from the wards of the main hospital showed an infection due to *Streptococcus haemolyticus*, whereas 60 per cent of the women transferred from the district had an infection due to this organism. This is contrary to the generally accepted

view that the incidence of potential serious infection is greater among women delivered in hospitals than among those delivered in their own homes. In the third edition the authors quoted Kerr and Holland's statistics, which were published in 1921 and which showed a death rate of 7 per cent for 4,160 classic cesarean sections, as contrasted with a mortality of 15 per cent for thirty-three lower segment operations. It is unfortunate that the authors repeat these fifteen year old statistics in the fourth edition, especially because the thirty-three cervical operations represented the first crude efforts of a few British obstetricians. In spite of the poor showing of the cervical operations in 1921, one of the authors of the 1921 report (Kerr) is today the greatest advocate of the low cervical operation in the British Isles. Furthermore, world-wide statistics prove the superiority of the cervical cesarean section over the classic operation. This book ranks among the best in Great Britain, and the appearance of a fourth edition within nine years attests its great popularity.

Principles of Chemistry: An Introductory Textbook of Inorganic, Organic and Physiological Chemistry for Nurses and Students of Home Economics and Applied Chemistry, with Laboratory Experiments. By Joseph H. Roe, Ph.D., Professor of Biochemistry, School of Medicine, George Washington University. Fourth edition. Cloth. Price, \$2.75. Pp. 475, with 41 illustrations. St. Louis: C. V. Mosby Company, 1936.

This is intended to be a combined textbook and laboratory manual for the chemistry, inorganic, organic and physiologic, taught in nurses' training courses and in some home economic courses. It is strictly up to date and well written. In a textbook designed for courses in which the amount of time for the study of chemistry is very limited, much of the value of the text depends on the wisdom of the author in choosing what subjects to include and what to leave out. Quite naturally, the treatment of the inorganic part of the text is the largest because in this part the introductory subjects, which include chemical laws, solutions, equations, units of measure and the like, are treated. However, this part of the text is not complete enough for an ordinary freshman course in chemistry. The organic and physiologic portion of the text are combined. The portion dealing with pure organic chemistry is abbreviated: that dealing with such subjects as metabolism, nutrition, elimination, hormones and vitamins is given somewhat longer treatment. This portion of the text, more than the former, relates to what are considered facts instead of the reasons for the facts. It is convenient for the student to have a laboratory manual combined with the text. In the laboratory manual portion of this volume there are blank pages for notes. Students who would use this book need instruction and outlines for writing up experiments, in order to classify in their own minds what they have done, what they have observed and what they have concluded. If these blank pages are used for taking notes in the laboratory they will be helpful; if they are used as the one and only laboratory notebook, an exceptional laboratory teacher will be required to get more than a hodgepodge.

Geschichte der physiologischen Chemie. Von Dr. Fritz Lieben, Privatdozent an der Universität Wien. Paper. Price, 20 marks. Pp. 743. Leipzig and Vienna: Franz Deuticke, 1935.

The history of physiologic chemistry is presented in two main sections and from two different points of view. In the first part are the usual historical development of chemistry—the chemistry of the ancients, the iatrochemical and phlogiston periods, and then chapters on Lavoisier to Berzelius, Liebig and his contemporaries in Germany, the great French chemists of the nineteenth century and the great German chemists of the nineteenth century. Unfortunately, the sources for the periods prior to the nineteenth century are the usual histories of chemistry. It would seem that more use of original ancient, medieval and eighteenth century literature would have opened up many household, agricultural, medical and industrial practices, customs and superstitions of special biochemical interest in the light of present knowledge. The second part is not so much a history of the science as a chronologically arranged descriptive treatment of twelve special subdivisions of biochemistry. These chapters cover nutrition, vitamins and metabolism; muscle chemistry, metabolism and dynamics; protein chemistry and metabolism; fermentations; the oxygen-carrying property of the blood; bile composition and function; lipins and their metabolism; carbohydrates and their metabolism; nucleic acid

chemistry and metabolism; the composition of urine and the significance of the results; inorganic constituents and their needs in living matter, and hormones. Each in turn is treated briefly with respect to the ancient and medieval views and at greater length their development since the time of Lavoisier. Each chapter closes with a statement of the main sources of the material presented. Curiously, nothing is stated as to the development of the physical-chemical aspects, the importance of special analytic methods, concepts and tools, and the absolute necessity of the micro methods of Pregl for the developments in vitamins and endocrine principles. The work includes good author and subject indexes. It is a valuable reference work for every teacher of biochemistry from the standpoint of historical development, although one might have desired more information on the erroneous views of the earliest and later centuries and the reasons and difficulties involved.

A Synopsis of Surgical Anatomy. By Alexander Lee McGregor, M.Ch., F.R.C.S., Lecturer on Surgical Anatomy, University of the Witwatersrand. With a foreword by Sir Harold J. Stiles, K.B.E., F.R.C.S. Third edition. Cloth. Price, \$6. Pp. 664, with 648 illustrations. Baltimore: William Wood & Company, 1936.

This textbook is written with the object of presenting valuable facts to the senior student and practitioner. It consists of two parts: the anatomy of the normal and the anatomy of the abnormal. In the first part surgical anatomy is considered with reference to the various regions of the body. The head, neck, chest, abdomen and pelvis with their contents are taken up, followed by the vertebra and the bones of the extremities. In each region the various nerves, muscles, blood vessels and lymphatics are considered with reference to their surgical importance. In the second part the same systematic plan is followed with a discussion of the surgical conditions that may result from developmental and abnormal anatomic errors. The omission of all but the essential points makes their surgical importance clear in a few brief sentences. The anatomic basis and description of certain clinical tests and the anatomic advantages of certain operations is included, making the text more interesting to the student and the clinician. There are 648 simple line diagrammatic drawings to illustrate a text of 623 pages. These are particularly designed to permit one to see almost at a glance the normal and abnormal anatomic points of interest. The book is not only a most instructive synopsis of anatomy but is carefully planned to promote its practical application to clinical diagnosis and operative surgery.

Mind, Medicine and Metaphysics: The Philosophy of a Physician. By William Brown, D.M., D.Sc., F.R.C.P. Cloth. Price, \$3. Pp. 294. New York & London: Oxford University Press, 1936.

This is a collection of essays and lectures dealing with psychologic, philosophic, and religious aspects of medicine. The author is a physician, a psychologist and a philosopher, holding official positions in each of these capacities. Just as versatility is said to be the curse of genius, so this diversity of interests seems to have impaired the author's ability to take a pronounced stand with respect to any of them. He commends psychoanalysis with reservations; he takes the Oxford movement seriously enough to point out some of its obvious psychologic faults; he reports the case of a hypnotic trance in a medium controlled with a psychogalvanometer. He discusses the psychology of international relations, the sexual problems of adolescents, the relation of religion to psychology. Whether or not one shares the author's views about many of these things, there is little fault to find with what he says; it is rather that his restraint, his feeling that he must not go too far in commending or criticizing anything, his relatively superficial and often repetitious treatment of this wide variety of topics makes the book rather undistinguished. It cannot be said to represent anything except the philosophic ruminations of a widely read scientist with religious inclinations. His criticism of the Oxford movement would indicate that this is taken more seriously in the country of its origin than in the United States. The author shows that from the psychologic standpoint its techniques are neither valid nor adequate as devices for consistently altering personalities, but, having rather carefully demonstrated this fact, he ends by "hoping" that he has not been unnecessarily critical and that "the movement itself may become deepened as it goes on and that the conversions . . . will become consolidated by deep religious development. . . ."

Experimental Physiology with Anatomical and Mechanical Illustrations and an Appendix of Technical Data. By Maurice B. Visscher, Ph.D., M.D., Professor of Physiology and Head of the Department in the University of Illinois, Chicago, and Paul W. Smith, Ph.D., Associate in Physiology in the University of Illinois. Cloth. Price, \$3.25. Pp. 191, with 75 illustrations. Philadelphia: Lea & Febiger, 1935.

The experiments described in this laboratory manual are obviously adapted to the equipment and conditions of the authors' laboratory but most of them are readily adaptable to any equipment. One especially valuable feature of the book is the extensive use of new and original illustrations of apparatus and operative procedures. Another is the appendix of twenty pages, in which are found directions for the preparation of special solutions, dosages of drugs commonly used in laboratory work, formulas and other general information. There are 113 experiments listed, some of which are adaptations of classic experiments, others of original design. In their efforts to "modernize" some of those in the first group the authors appear to have overdone the job to some extent, as the revisions have neither added to the illustrative value of the experiments nor clarified the description of the procedures involved. Also there are some poorly advised efforts to apply physicochemical principles, such as the calculation of the osmotic pressure of plasma proteins on page 24. Any one acquainted with the principle of the Donnan equation is aware that the conditions of the experiment as described cannot provide the exactitude that is implied. The experiment would make a better impression on the student if the calculation were omitted entirely. This criticism applies as well to the calculation of the osmotic work of the kidney outlined on page 164. There are many other experiments more suitable for the purpose. However, individual instructors may omit requirement of these calculations if they desire and may still find the manual of value as a laboratory guide for students of any grade.

Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists. Editorial Board: W. W. Skinner, Chairman. Committee on Editing Methods of Analysis: E. M. Bailey (Chairman), and others. Fourth edition, 1935. Cloth. Price, \$5; for 5 or more copies, \$4, each. Pp. 710, with 52 illustrations. Washington, D. C.: Association of Official Agricultural Chemists, 1936.

This issue is presented in accordance with the original plan to publish a revision every five years. The aim of the work is to include all the approved methods of the association for the analysis of agricultural products and of related substances. The procedures are given in clear, concise statements with no typical analyses. The noteworthy feature is the clarity of composition. The subject matter and arrangement closely resemble those of the third edition. A few unsatisfactory or unimportant methods have been omitted, while other chapters, such as that on beers, wines and distilled liquors, have been expanded. One chapter, "Nuts and Nut Products," which was mentioned in the third edition for future inclusion, has been added. Six other subjects are still being contemplated. Appendix I, dealing with preparation and standardization of solutions, is a valuable addition. The book is an authoritative analytic guide but is not a great improvement over the preceding edition.

La diphtérie. Par G. Carrière, professeur de clinique médicale à la Faculté de médecine de l'Université de Lille. Paper. Price, 35 francs. Pp. 213, with 45 illustrations. Paris: Masson & Cie, 1936.

In the present day a treatise on diphtheria is not likely to attract wide attention. The literature is voluminous and the average physician undoubtedly feels that he has a satisfactory knowledge of the disease. Carrière, however, has presented the subject in a remarkably complete and concise manner. One can readily appreciate when reading this book that the author's thirty-five years' experience has permitted him to discuss phases of diphtheria which are not mentioned in the average textbook. The gravity of diphtheria when associated with streptococcal infection receives comment. It is also asserted that measles and scarlet fever lessen immunity to diphtheria. The author has observed tracheobronchial diphtheria only three times in a period of thirty years but states that bronchopneumonia was noted in four fifths of the necropsies (diphtheria) in infantile clinics from 1900 to 1925. Saturation of the atmosphere about diphtheria patients with antiseptic vapors is recommended. With regard to dosage of diphtheria antitoxin, it is stated that "500 units per kilo of weight is curative, necessary and suf-

ficient." Tests for sensitivity are always made from four to five hours before injection of antitoxin. Some of the author's views with respect to treatment would in all probability not be acceptable to most clinicians in this country. The value of antiseptic vapors about the patient seems doubtful and the weight method of determining dosage of antitoxin unsatisfactory. The book is divided into twenty-four chapters. There are a number of illustrations, including three plates in color; also graphs and tables. It is well worth reading and will prove of value to any one interested in the subject.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Liability for Fee of Physician Not Authorized to Treat Compensation Cases.

—The legislature of New York, in 1935, amended the workmen's compensation act to give to an injured employee, except under certain enumerated conditions, the right to select the physician to treat him, such selection to be made from a panel of physicians specially authorized to treat compensation cases in the following manner:

The commissioner shall upon the recommendation of the medical society of each county or of a board designated by such county society, or by a board representing duly licensed physicians of any other school of medical practice, authorize physicians licensed to practice medicine in the state of New York to render medical care under this chapter. If, within sixty days after the commissioner requests such recommendations, the medical society of any county or board fails to act, or if there is no such society in the county, the commissioner shall designate a board of three qualified physicians, who shall make the requested recommendations.

No physician not so authorized by the industrial commissioner may collect any fee for treatment rendered to compensation patients. The plaintiff, a physician, treated an injured employee, apparently at the request of the employer. He thereafter brought suit against the employer in the supreme court, special term, New York County, to enforce payment of his bill. In his complaint, however, he did not allege that he had been duly authorized to render medical care under the workmen's compensation act. The sole question before the court was whether the failure to include such an allegation in the complaint rendered it defective so as to entitle the employer to a dismissal of the case.

Prior to 1935, the court said, while the workmen's compensation act provided for medical care and treatment of injured employees, there was scant provision regulating the rendering of such treatment. The guiding principle was that the employer was to provide medical care, and he it was who in the ordinary case chose the physician. The industrial board had no jurisdiction to make an award for hospital bills or physicians' services except in two cases: (1) where the employee requested his employer to furnish medical treatment and the employer neglected or refused to do so, and (2) where the nature of the injury required such treatment and the employer or his superintendent or foreman, having knowledge of such injury, neglected to provide the treatment. In other cases the employer became directly obligated to the physician, who had his remedy in the courts and not under the workmen's compensation act. Protests arose from various sources against abuses that had grown up involving the medical care of injured workmen. A joint committee of the Medical Society of the State of New York and the Academy of Medicine was appointed to study the situation and a report by this committee was made the subject of a special message by the governor to the legislature. As a result the act was amended in 1935. One purpose of the particular amendment under discussion, said the court, was to restrict the treatment of all compensation cases to physicians authorized by the industrial commissioner to render such treatment. Permitting the employee to select his physician is, the court emphasized, a salutary step, since it was the absence of such right that gave rise to so many abuses under the old law. Whether the physician is chosen by the employee or

under certain enumerated conditions, by the employer, one thing is implicit in the amended act, the physician must be one authorized to render medical treatment in workmen's compensation cases. To hold that an employee must select a physician duly authorized under the act, and, if the choice be one which the employer may exercise, to permit him to select any physician whether authorized to render services under the act or not, would lead to unjust results. If the plaintiff in the present action, the court said, is entitled to judgment the desirable benefits of the 1935 amendments to the compensation act will be to a large extent nullified. Any unauthorized physician would then be entitled to bargain with employers for the treatment of injured employees. Whenever the employee does not object, and in many cases through pressure from the employer or through ignorance of the law he will not object, such unauthorized physicians would be in a position to provide medical care for fees at variance with the prescribed schedules of minimum fees and without being subject to the disciplinary provisions of the amended act. The door would then be open to a revival of the very abuses which the amended act was intended to cure, the cut-throat competition and commercialization of compensation medical practice, the improper "lifting" of cases and the inadequate and inefficient treatment of injured workers.

While the practice of medicine is a property right, it is one which is subject to the most stringent regulations. The right to practice medicine must yield to the paramount right of the state to protect health by any rational means. A state may not only impose requirements prerequisite to a license to practice medicine generally, but it may impose additional requirements as a condition to permitting a licensed physician to continue to practice and to treat employees under the workmen's compensation act. The right to practice medicine is not essentially different from the right to practice law. The fees of attorneys in compensation cases have been strictly limited and the courts have upheld those limitations. The requirement that only authorized physicians treat compensation cases bears a reasonable relationship to the orderly and efficient administration of the act. In concluding, the court summarized its holding as follows:

(1) That the Legislature has power to abrogate in whole or in part the common-law rights of physicians who treat workmen's compensation cases. By that I mean, for example, that the Legislature has power to provide that a physician's exclusive remedy to recover payment for treating compensation cases shall be under the Workmen's Compensation Law and not in the courts; that it may by reasonable provisions restrict and limit the contractual relations between physicians on the one hand and employers or injured employees on the other, and that such reasonable restrictions may be made applicable not alone to the awards to physicians under the Workmen's Compensation Law, but to actions for services in the courts as well;

(2) The requirement that only physicians who are specially authorized by the Industrial Commissioner for that purpose may treat injured employees in accordance with the provisions of the Workmen's Compensation Law is a reasonable one, calculated to accomplish the humane objects of that statute and to do away with abuses and evil practices that arose in connection with its administration;

(3) No physician under the amended statute is permitted to treat compensation cases or entitled to be paid therefor unless he is authorized by the Industrial Commissioner, and this applies whether the physician is chosen by the employee or by the employer;

(4) Assuming but not deciding that a physician chosen by an employer to treat a compensation case may, despite the amended statute, sue the employer in the courts for payment of his services, as a condition to recovery he is required to allege and prove that he was duly "authorized" to render medical care to injured employees under the Workmen's Compensation Law.

For the reasons stated, the court granted the motion made by the employer to dismiss the complaint.—*Sold v. Outlet Embroidery Supply Co., Inc.* (N. Y.), 289 N. Y. S. 411.

Paternity: Determination by Blood Grouping Tests.—The defendant was convicted on a charge of fornication and bastardy. He appealed to the superior court of Pennsylvania contending, among other things, that the trial court erred in refusing to require the prosecutrix to submit herself and her baby for a blood grouping test to determine the paternity of the baby, and in refusing to continue the trial of the case pending the taking of such tests.

It was not an abuse of discretion, said the superior court, for the trial court to refuse to continue the case after the jury had been sworn. Furthermore, even had the petition been

presented earlier it would have been the duty of the trial court to refuse the motion. At common law, the defendant did not have a right to a physical examination of the plaintiff in an action for personal injuries. In personal injury cases in which the amount of damages to which a plaintiff is entitled is at issue, the rule in Pennsylvania is that it is within the discretion of the trial court to require the person injured to submit to a physical examination for the purpose of determining the extent of the injury. The exercise of such power, however, is a matter within the discretion of the trial court and only subject to appeal when such discretion is abused. But, said the court, we are here concerned not with a civil but a criminal case in which the commonwealth is the plaintiff. To refuse to permit a criminal case to proceed until a recalcitrant witness submits to an examination would deprive the commonwealth of its right and duty to enforce the criminal laws. In addition, the granting of the prayer of the defendant's petition would result in more than a mere permission to inspect the body of the prosecutrix, for it was proposed to insert a needle in her body and withdraw a small amount of blood for an examination. While such an operation is not regarded as entailing any serious danger to health, it cannot be said that there is no danger, for there is always present some risk of infection. Furthermore, the record in the present case, the court said, was entirely void of proof as to the scientific accuracy of blood grouping tests and such tests have not attained such standing as to justify a court in taking judicial notice of their value. Until the legislature finds that blood grouping tests have attained such scientific standing as to possess probative value as to paternity, the courts have not the power in a criminal case such as the one here involved to compel a prosecutrix to submit her body for blood tests.

While holding that the trial court ruled correctly with respect to the matter of blood grouping tests, the superior court felt impelled to reverse the judgment of conviction for other reasons and remanded the case for a new trial.—*Commonwealth v. English (Pa.)*, 186 A. 298.

Workmen's Compensation Acts: Compensability of Tuberculosis.—The workmen's compensation act of Connecticut defines a personal injury for which compensation may be allowed as including only an "accidental injury which may be definitely located as to the time when and the place where the accident occurred, and occupational disease." An occupational disease is defined as "a disease peculiar to the occupation in which the employee was engaged and due to causes in excess of the ordinary hazards of employment as such." The claimant contracted tuberculosis in the course of her employment by the defendants, manufacturers of women's dresses. The compensation commission awarded the claimant compensation under the workmen's compensation act, the superior court reversed that award, and the claimant appealed to the Supreme Court of Errors of Connecticut.

To constitute an occupational disease within the meaning of the workmen's compensation act, said the court, the disease must be a natural incident of a particular kind of employment, one which is likely to result from that employment because of its inherent nature. The act does not embrace a disease which results from the peculiar conditions surrounding the employment in a type of work which would not from its nature be more likely to cause the disease than would other kinds of employment carried on under the same conditions. Thus, pneumoconiosis resulting from wet grinding is an occupational disease. *Rousu v. Collins Co.*, 114 Conn. 24, 157 A. 264. Pneumonia, however, resulting from exposure incurred in highway construction is not. *Galluzzo v. State*, 111 Conn. 188, 149 A. 778. In the present case, the claimant's disease resulted from the conditions of her particular employment in the factory. Other trades, however, carried on under those conditions would have been as likely to cause the disease as the manufacture of dresses. To award compensation to the claimant, therefore, would be in contravention of the legislative intent as embodied in the workmen's compensation act. The case of the claimant evoked the sympathy of the court, for the record disclosed that the tuberculosis from which she suffered was contracted because of conditions of employment

which never should have been permitted to exist. But if such cases, the court said, are to be brought within the act, the legislature must do it. The judgment of the superior court remanding the case with instructions to dismiss the claim was therefore affirmed.—*Madeo v. I. Dibner & Bro., Inc. (Conn.)*, 186 A. 616.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 7. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. Telinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscam, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New York Medical Society of the State of Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
- South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.
- West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

29: 435-650 (March) 1937

- Solitary Cutaneous and Subcutaneous Leiomyoma. A. P. Stout, New York.—p. 435.
- *Multiple Glomic Tumors. H. Bergstrand, Stockholm, Sweden.—p. 470. Colorimetric and Spectrophotometric Determination of Vitamin C in Malignant Tumors. C. Voegtlin, H. Kahler and J. M. Johnson.—p. 477.
- Chemical Studies on Tumor Tissue: IV. Staining with Neutral Red of Fresh Preparations of Mouse Tumor Cells. M. Belkin and M. J. Shear, Boston.—p. 483.
- Id.: V. Staining with Vital Dyes of Mouse Tumor Cells Swollen in Salt Solutions. M. J. Shear and M. Belkin, Boston.—p. 499.
- Metabolism of Pure Cultures of Malignant Cells of Walker Rat Sarcoma 319. J. Victor and W. H. Lewis, Baltimore.—p. 503.
- Myeloid Hyperplasia Brought About in Mice by Growth of Dibenzanthracene Tumors and Its Relation to Transplantability of Tumors into Mice of Alien Strains. Margaret Reed Lewis, Washington, D. C.—p. 510.
- Serologic Observations on Spontaneous Regression of Implants of Jensen's Rat Sarcoma. T. Lumsden and H. J. Phelps, London, England.—p. 517.
- Structure of Thyroid in Mice of Different Strains. G. Barry and E. L. Kennaway, London, England.—p. 522.
- *Studies in Genetics of Human Neoplasms: Cancer of Breast, Based on 201 Family Histories. R. P. Martynova, Moscow, U. S. S. R.—p. 530.
- Chordoma: Case with Unusual Endocrine Findings. V. D. Barnes and S. E. Owen, Hines, Ill.—p. 541.
- Osteogenic Sarcoma of Femur in a Guinea-Pig. S. A. Leader, Chicago.—p. 546.
- Ossifying Fibroma of Maxillary Sinus: Report of Case Successfully Treated with Irradiation. I. Arons, New York.—p. 551.
- Relative Biologic Effectiveness of Fast Neutrons and X-Rays on Different Organisms. R. E. Zirkle, Philadelphia; P. C. Aehersold and E. R. Dempster, Berkeley, Calif.—p. 556.

Multiple Glomic Tumors.—Bergstrand describes two cases of multiple glomic tumors localized in the posterior lateral part of the foot, in the malleolar region. In one case six tumors were observed. One of these lay deeply within the adipose tissue in the sinus tarsi. In the second case there was a subcutaneous tumor and tumors in the calcaneus, talus, os cuboideum and the fifth os metatarsale, a localization heretofore unknown. In one of the two cases of multiple glomic tumors previously described in the literature, the tumors were also localized in the heel.

Studies in Genetics of Human Neoplasms.—In 1932 Martynova began a systematic study on the genetics of human tumors. Cancer of the breast was studied first because of its comparative ease of diagnosis. In all, 201 female patients were examined and their pedigrees obtained. The material was definitely not a collection of familial cases. Altogether the 201 pedigrees included 7,173 persons. In the study of the genetics of cancer of the breast two problems present themselves: general predisposition of the organism to cancer and local predisposition to cancer of the breast. In an attempt to obtain a solution of these problems, the frequency of cancer was compared with the incidence in the general population. The percentage of cancer among relatives of the series under discussion was much higher than in the control population of the same age, or among relatives of leukemia patients. This high familial incidence of cancer for all categories of relatives speaks against its chance occurrence and indicates that hereditary factors play a definite part in the etiology of the disease. A comparatively high percentage of uncles and aunts were affected, as compared to parents. This is best explained by the fact that the patient is generally better informed concerning those of his relatives having the disease than those that are healthy. Cancer of the breast is more frequent in all categories of female relatives of the patients than in the control population.

The disease was eighteen times as frequent in mothers of patients as in mothers of similar age in the control group. These facts indicate an inherited predisposition to cancer of the breast. This conclusion is further substantiated by the fact that cancer of the breast in women is generally fourth or fifth in frequency, following cancer of the stomach, uterus, esophagus and liver (including gallbladder). The author's data indicate that there is a hereditary predisposition to cancer of the breast as well as to cancer in general. It seems that there is complete absence of inbreeding among the relatives of the patients. The percentage of cases of cancer of the breast is much higher in mothers than in sisters of patients. Age may be an important factor here, but it is doubtful whether this alone can account for the difference. As regards general predisposition to cancer, there were six instances in which both parents had cancer—in two cases cancer of the same organ—and all the offspring resulting from these marriages were unaffected, though seven of these were more than 40 years of age, making it very unlikely that general predisposition to cancer is determined by a recessive gene substitution. It is possible that some of these offspring may yet develop the disease, although it is hardly likely that all will do so. It is more probable, therefore, that one has to do with a dominant form of inheritance. The degree of expression of the genetic factors involved cannot yet be evaluated, and it does not follow that these observations for cancer of the breast are necessarily true for other forms of cancer. Among the relatives of the patients in the series, fifty-one had tumors other than cancer, there were twenty-three instances of benign growths of known diagnosis, and twenty-eight cases were indicative of a benign neoplasm.

American Journal of Physiology, Baltimore

118: 423-632 (March) 1937. Partial Index

- Alterations of Alveolar Carbon Dioxide in Man Accompanying Postural Change. R. J. Main, Chicago.—p. 435.
- Alteration of Actions of Various Respiratory Modifiers by Local Cooling of Floor of Fourth Ventricle. H. C. Nicholson and D. Brezin, Ann Arbor, Mich.—p. 441.
- Rate of Lactic Acid Removal in Exercise. E. V. Newman, D. B. Dill, H. T. Edwards and F. A. Webster, Boston.—p. 457.
- Vitamin A Deficiency in Dog. P. D. Crimm and D. M. Short, Evansville, Ind.—p. 477.
- Extrapyramidal Control of Micturition: Effects of Lesions of Tegmentum of the Midbrain. P. M. Levin and O. R. Langworthy, Baltimore.—p. 483.
- Influence of Pylorotomy on Strength of Acid Secreted by Fundus. C. M. Wilhelmj, H. H. McCarthy, F. T. O'Brien and F. C. Hill, Omaha.—p. 505.
- Retrogression of Lactating Mammary Gland in the Guinea-Pig. Cora Hesselberg and L. Loeb, St. Louis.—p. 528.
- Olfactory and Trigeminal Conditioned Reflexes in Dogs. W. F. Allen, Portland, Ore.—p. 532.
- Influence of Pancreas on Serum Phosphatase of Dogs. S. Freeman and A. C. Ivy, Chicago.—p. 541.
- Influence of Nutritionally Produced Anemia on Ability of Experimental Animals to Withstand Low Temperatures. I. A. Manville and E. B. Chase, Portland, Ore.—p. 549.
- *Studies of Urine at Hourly Intervals After Administration of Glycine. Mildred Adams, Marschelle H. Power and W. M. Boothby, Rochester, Minn.—p. 562.
- Effect of Anterior Hypophyseal Extract on Serum Calcium and Phosphorus. H. B. Friedgood and R. McLean, Boston.—p. 588.
- Comparison of Sodium, Chloride and Carbohydrate Changes in Adrenal Insufficiency and Other Experimental Conditions. S. W. Britton and H. Silvette, with technical assistance of R. F. Kline, Charlottesville, Va.—p. 594.
- Cortico-Adrenal Insufficiency: Metabolism Studies on Potassium, Sodium and Chloride. H. W. Nilson, Rochester, Minn.—p. 620.

Urine Studies After Administration of Aminoacetic Acid.—Adams and her colleagues determined the composition of urine collected at hourly intervals for from four to five hours after the ingestion of aminoacetic acid (from 10 to 20 Gm.) for normal individuals and for patients who had myasthenia gravis, progressive muscular dystrophy or fatigability of indefinite origin. The response of the individuals in these groups was qualitatively similar. In addition to the increased elimination of urea, uric acid and amino acids to be expected, there usually occurs an increased excretion of creatine. This may be slight or nonexistent the first time aminoacetic acid is given. If a creatinuria already exists, however, or has been provoked by the daily administration of aminoacetic acid, the prevailing hourly rate of excretion of creatine will in general be increased markedly when aminoacetic

acid is taken, either for the first time or immediately following the regular daily dose. The experiments were conducted from fourteen to sixteen hours after the last meal; consequently the results may be taken to represent the effects of aminoacetic acid more simply and more directly than the results of studies of twenty-four hour specimens of urine obtained from subjects who are receiving their usual diet. The hourly excretion of the sulfur partition products and the inorganic constituents was not influenced consistently by the administration of aminoacetic acid.

Anatomical Record, Philadelphia

67: 399-540 (March 25) 1937

- Simultaneous Occurrence of Number of Variations of Visceral Branches of Abdominal Aorta: Case. L. I. Kostinovich, Odessa, U. S. S. R.—p. 399.
- Method for Visualizing Different Organs in the Normal Unanesthetized Animal. F. R. Steggerda and C. Gianturco, Urbana, Ill.—p. 405.
- Metamorphosis of Pubic Symphysis: III. Histologic Changes in Symphysis of Pregnant Guinea-Pig. E. B. Ruth, Rochester, N. Y.—p. 409.
- Experimentally Induced Hyperthyroidism in Chick Embryo. G. L. Woodside, Boston.—p. 423.
- Cholesterol Storage and Bile Secretion in Chorio-Allantoic Grafts of Liver. A. J. Dalton, Cleveland.—p. 431.
- Development of Pars Intestinalis of Common Bile Duct in Human Fetus, with Especial Reference to Origin of Ampulla of Vater and Sphincter of Oddi: I. Involution of Ampulla. R. A. Schwegler Jr. and E. A. Boyden, Minneapolis.—p. 441.
- Technic for Studying Innervation of Organs. L. R. Wharton, Baltimore.—p. 469.
- Histology of Mammary Glands of Adrenalectomized Lactating Rats. I. Levenstein, New York.—p. 477.
- Inexpensive Casting Material for Making Anatomic Reproductions. I. Rehman and G. J. Noback, New York.—p. 493.
- Anencephalic Human Embryo 16.5 mm. Long. G. S. Dodds and E. DeAngelis, Morgantown, W. Va.—p. 499.
- Sexual Responsiveness and Temporally Related Physiologic Events During Pregnancy in Rhesus Monkey. Josephine Ball, Baltimore.—p. 507.
- Fate of Mouse Ova Tube Locked by Injections of Estrogenic Substances. H. O. Burdick, R. Whitney and G. Pincus, Boston.—p. 513.
- Studies of Heart Muscle in Tissue Cultures. M. J. Hogue, Philadelphia.—p. 521.

Annals of Internal Medicine, Lancaster, Pa.

10: 1267-1458 (March) 1937

- Circulatory Studies on Anoxemia in Man with Respect to Posture and Carbon Dioxide. E. Gellhorn, Chicago.—p. 1267.
- *Death Complicating Withdrawal of Narcotics, with Respiratory Difficulties Predominant: Report of Three Cases. P. Piker and J. Gelperin, Cincinnati.—p. 1279.
- Fatal Iodine Poisoning: Clinicopathologic and Experimental Study. R. Finkelstein and M. Jacobi, Brooklyn.—p. 1283.
- Galactose Tolerance Test in Jaundice; Consideration of Evidence Permitting Measurement of Galactose Utilization by Urinary Excretion; Some Sources for Error in Its Interpretation, and Addition in Routine Technique. H. Shay and P. Fieman, Philadelphia.—p. 1297.
- *Night Blindness as Criterion of Vitamin A Deficiency: Review of Literature with Preliminary Observations of Degree and Prevalence of Vitamin A Deficiency Among Adults in Both Health and Disease. H. Jeghers, Boston.—p. 1304.
- Crystalline Insulin. J. H. Barach, Pittsburgh.—p. 1335.
- Lobar Pneumonia: Analysis of 1,298 Cases. J. F. Painton and H. J. Ulrich, Buffalo.—p. 1345.
- Further Observations of Histidine Treatment of Peptic Ulcer. E. W. Willhelmy, Kansas City, Mo.—p. 1365.
- Study of Hypertension in Veterans. J. A. Reisinger, Washington, D. C.—p. 1371.

Death Complicating Withdrawal of Narcotics.—During three years Piker and Gelperin have seen three deaths in narcotic addicts who had been suddenly deprived of the drugs to which they had become habituated. The principal clinical manifestations common to all three were coma, an unusual respiratory disturbance and death. The respiration was irregular and uniformly deep. Periods of apnea of varying lengths (up to one and one-half minutes) occurred at irregular intervals, to be followed immediately by deep, gasping inspirations during which all the accessory muscles of respiration were put to vigorous use. The expiratory phases were not particularly forceful. Generalized cyanosis was marked. These dyspneic periods fluctuated in duration in the same patient, lasting from five minutes to several hours. During the intervals between the attacks of dyspnea, which also varied in length, the cyanosis diminished. The administration of morphine sulfate subcutaneously had no appreciable effect. Though the respiration suggested the Cheyne-Stokes type of breathing in some respects, it was by no means typical. Gross and histologic study of the medulla on postmortem examination in one of these cases revealed no enlightening pathologic condition. It is known

that the depressing effect of a poisonous dose of morphine on the respiratory center of the frog will eventually result in a type of respiration which is somewhat like that seen in the authors' patients. This fact, however, does not explain why abrupt withdrawal of the poisonous substance should produce a similar result. The unusual respiratory behavior was common to all three patients despite the existence in each case of factors which made it distinct from the others. The type of opium derivative to which each was habituated, the time between the patient's last dose of drug and the onset of coma and respiratory difficulty, the non-narcotic medication given before and after the onset of the coma—these and other factors varied markedly in the three cases. The circulatory failure did not occur in two of the patients (save as a terminal phenomenon).

Night Blindness as Criterion of Vitamin A Deficiency.—Jeghers discusses the prevalence of vitamin A deficiency in a group of supposedly normal adults, gives some preliminary results obtained by testing persons afflicted with various types of diseases, and reviews the literature dealing with the physiology, biochemistry, pathology and clinical aspects of vitamin A deficiency. Night blindness (hemeralopia), in the absence of intra-ocular disease, is the earliest and most constant manifestation of vitamin A deficiency in adults. In adults, night blindness may exist for years as its only manifestation. Night blindness is associated with certain objective data which can be measured by means of special procedures. These serve as a quantitative estimate of the degrees of vitamin A deficiency and are particularly valuable in that they can detect deficiency long before it becomes clinically manifest. The results of studying 274 adults by means of a Birch-Hirschfeld visual photometer and data collected from the literature show that mild to moderate degrees of vitamin A deficiency are common among many supposedly healthy adults. Financial reasons, peculiarities in choice of foods, ignorance of a proper diet and a desire to reduce weight were among the factors leading to deficiency. Vitamin A deficiency may occur even if the amount ingested daily is theoretically adequate if any condition is present which (1) increases the metabolic need for vitamin A, (2) interferes with the proper absorption from the gastrointestinal tract or (3) interferes with the conversion of carotene or storage of vitamin A in the liver. Vitamin A deficiency is probably a constant feature of liver disease and does not respond to the usual oral doses of vitamin A.

Archives of Dermatology and Syphilology, Chicago

35: 377-562 (March) 1937

- Continuous and Intermittent Treatment for Early Syphilis: Critical Review of the American and the League of Nations' Investigation, with Additional Evaluations. J. H. Stokes, Philadelphia, and Lida J. Usilton, Washington, D. C.—p. 377.
- Cooperative Clinical Studies in Treatment of Syphilis: Asymptomatic Neurosyphilis. P. A. O'Leary, Rochester, Minn.; H. N. Cole, Cleveland; J. E. Moore, Baltimore; J. H. Stokes, Philadelphia; U. J. Wile, Ann Arbor, Mich.; T. Parran, R. A. Vonderlehr and Lida J. Usilton, Washington, D. C.—p. 387.
- Marquardt in Treatment of Syphilis: Further Experiences. L. M. Wieder, O. H. Foerster and H. R. Foerster, Milwaukee.—p. 402.
- *Multiple Glomus Tumors of Order of Telangiectases. F. D. Weidman, Philadelphia, and F. Wise, New York.—p. 414.
- *Unsaturated Fatty Acids in Eczema: Observations on Acne Vulgaris, Psoriasis, Xanthoma Tuberosum and Xanthoma Palpebrarum. N. N. Epstein and D. Glick, San Francisco.—p. 427.
- Some Results of Patch Tests: Compilation and Discussion of Cutaneous Reactions to About 500 Different Substances, as Elicited by Over 10,000 Tests in Approximately 1,000 Patients. A. Rostenberg Jr. and M. B. Sulzberger, New York.—p. 433.
- Oriental Sore: Report of Case. E. J. Trow, Toronto.—p. 455.
- Ringworm of Scalp: III. Clinical and Experimental Studies in Types of Infection Resistant to Treatment. G. M. Lewis and Mary E. Hopper, New York.—p. 460.
- Vitamin C and Pigment. T. Cornbleet, Chicago.—p. 471.
- Darier's Disease with Malignant Transformation. H. Characht, Brooklyn.—p. 480.

Multiple Glomus Tumors of Order of Telangiectases.—Weidman and Wise's patient exhibited forty-eight lesions of the glomus tumor type. Some of them occurred on sites other than the extremities; i. e., on the cheeks, shoulders and buttocks. There were certain features in the case which might arouse criticism against the diagnosis of glomus tumor, particularly the painlessness and the absence of demonstrable

nerve tissue on histologic examination. The authors believe that in their case telangiectases of glomi (lacking in nervous tissue) could account for the lesions, and they feel that perhaps the same explanation applies to cases reported by other investigators. It is suggested that some so-called glomus "tumors" are of the order of telangiectases, although others must be regarded as hamartomas or even as neoplasms. Clinically, however, the lesions bore not the slightest resemblance to cutaneous telangiectases of any variety.

Unsaturated Fatty Acids in Eczema.—Epstein and Glick further examined the iodine numbers of the blood lipids both in infants and in adults with eczema and compared the change in the iodine number with the condition of the skin in patients receiving oral treatment with oil. Studies of the iodine numbers in cases of cutaneous diseases other than eczema, i. e., psoriasis, acne vulgaris, xanthelasma and xanthoma, are also included. For the most part the disorders of these patients were of a particularly resistant type which had failed to clear after various forms of treatment. In four cases of infantile eczema the iodine numbers of the blood were determined. One of the babies, aged 3 months, received 2 teaspoonfuls of linseed oil by mouth three times daily for three months without any effect on the progress of the condition. One baby, aged 15 months, the iodine number of whose blood was not determined, received 2 teaspoonfuls of linseed oil three times daily for five months without improvement attributable to the therapy. There were seven children and one young adult whose eczema had begun in infancy and who had had recurring attacks since. The patients' ages varied from 11 to 18 years. The adult was 26 years old. Two patients in this group had received no linseed oil, while the others had taken half an ounce (15 cc.) of linseed oil three times a day for one month or longer. Two patients exhibited a flare up on one occasion during the period of treatment with oil. Only one patient with a disorder of a mild type definitely improved, but it was impossible to attribute this improvement to the oil therapy. Of the twenty-three adults who presented the various clinical types of generalized eczema, neurotic eczema, infectious eczematoid dermatitis and seborrheic eczema, eleven took 2 ounces (60 cc.) of linseed oil daily for from one to five months, but in no instance was there a definite beneficial effect on the eczema. In a group consisting of twelve patients with psoriasis, six with acne vulgaris, three with xanthoma tuberosum and one with xanthoma palpebrarum, no definite correlation could be observed between the iodine number of the blood, which varied considerably, and the clinical manifestations of the disease.

Archives of Otolaryngology, Chicago

25:235-362 (March) 1937

- Surgical Repair of Facial Nerve. S. Bunnell, San Francisco.—p. 235.
Diphtheria Simulating Peritonsillar Abscess: Dangers of Incision. A. H. Neffson, New York, and J. Brem, Boston.—p. 260.
Otitic Streptococcal Meningitis with Recovery: Report of Case. S. P. Schechter, New York.—p. 266.
*Osteomyelitis of Skull of Otitic and Paranasal Sinus Origin. H. C. Behrens, Whittier, Calif.—p. 272.
Use of Galvanic Current in Treatment of Atrophic Rhinitis and Ozena: Further Observations. J. S. Stovin, New York.—p. 305.
Peroral Endoscopy. L. H. Clerf, assisted by D. C. Baker Jr., Philadelphia.—p. 314.

Osteomyelitis of Otitic and Paranasal Sinus Origin.—Behrens reemphasizes the importance of osteomyelitis of the skull, discusses its various aspects, stresses its insidious onset and the disproportion between the external symptoms and its real gravity, asks for earlier recognition and adequate treatment of the rapidly progressive type and gives summaries of his seven cases. In the majority of cases, osteomyelitis of the skull follows surgical intervention and is also more serious from a prognostic standpoint than that which arises spontaneously. One should never operate on the sinuses unless the indications are clear cut, but when necessary one should operate promptly and expose the area adequately for good drainage. Nutrition of the bone will be impaired if pus or necrotic material is confined. The use of any instrument that rubs infected material into rough edges of bone, such as the rasp or the curet, should be avoided. The condition should be classified into the localized, or self-limited, type or the progressive type as soon as possible, so that appropriate treatment

may be instituted early. When radical treatment is necessary, one should use it promptly and thoroughly, in stages if necessary. Transfusions should be given preoperatively, postoperatively and intercurrently; the immunotransfusion is especially recommended. Supportive treatment should not be forgotten, regardless of the active treatment. Regeneration of bone in cranial defects is usually good, though it may take several years.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

18:129-192 (March) 1937

- Treatment of Keloids. W. J. Hoffman, New York.—p. 135.
Grenz Rays in Dermatology. C. White, Chicago.—p. 139.
Modern Hydrotherapy. H. J. Behrend, New York.—p. 146.
Light and Its Application to Irradiation of Foods. H. T. Scott, Madison, Wis.—p. 154.
Intestinal Toxemia. A. Bassler, New York.—p. 162.
Method of Examining Short Wave Field. C. K. Gale and A. Edelman, New York.—p. 165.
Fundamental Knowledge of Light. T. H. Peterson, Boston.—p. 170.

Canadian Public Health Journal, Toronto

28:105-156 (March) 1937

- The Problem of the Subnormal in the Community. B. T. McGhie, Toronto.—p. 105.
Vital Statistics at the Service of Public Health and the Medical Profession. E. Gagnon, Montreal.—p. 112.
*Typhoid Carriers Among 7,000 Food Handlers. J. R. Scott, Albuquerque, N. M.—p. 120.
Supervision in Public Health Nursing. Alice Ahern, Ottawa, Ont.—p. 125.
Investigation of Source of Arsenic in Well Water. J. Wyllie, Kingston, Ont.—p. 128.
Adrenal Glands: Review of Laboratory and Clinical Studies. R. A. Cleghorn, Toronto.—p. 136.

Typhoid Carriers Among Food Handlers.—Scott discusses the collection of specimens of the intestinal discharges for laboratory examination of some 7,040 persons engaged in handling food in its various forms. Of 2,138 dairy employees who submitted specimens for laboratory examinations 2,070 specimens were found to be negative for *Bacillus typhosus*, while 105 were received in a condition unsatisfactory for bacteriologic examination. Seven persons applying for employment in dairies were found to be excreting typhoid bacilli in the intestinal discharges. When expressed as a percentage, the number of positive typhoid carriers detected in this group amounts to the apparently insignificant figure of 0.32 per cent. However, when it is considered that milk is an exceptionally fine medium for the growth of typhoid organisms, the danger to the milk-consuming population, had these seven carriers been permitted employment in dairies, is vast. Many epidemics have been reported that have been traced to the employment of a single typhoid carrier in a dairy. While the number of typhoid carriers among dairy workers appears small, the detection and exclusion of these carriers from milk handling has been a valuable means of safeguarding the health of the citizens of the county. The menace of the typhoid carrier in cafés, restaurants, hotel dining rooms and other types of eating places is usually considered to be somewhat less than that presented by the carrier working in a dairy. There were 2,327 food handlers who submitted specimens of the intestinal discharges for laboratory study. Of these, 2,188 proved negative on examination, 132 were found to be unsatisfactory for examination and seven were found positive for *Bacillus typhosus*. Some 440 fecal specimens from soda fountain employees were obtained, of which number 424 were negative for *Bacillus typhosus*, while in sixteen cases the specimens were unsatisfactory for laboratory study. These soda fountain employees constituted the only group of the food and beverage handlers that failed to yield positive typhoid specimens. Had the series of specimens been larger, some typhoid carriers would undoubtedly have been detected among this class of workers. The cooperation of 732 employees of bakeries was enlisted for the study, of which 675 submitted specimens which were negative for *Bacillus typhosus*, while in fifty-three cases the specimens were unsuitable for laboratory study. Four persons were detected who had typhoid bacilli in the intestinal discharges. Of 629 specimens from employees of grocery stores and meat markets 578 were negative for *Bacillus typhosus*, while fifty specimens were unsuited to laboratory investigation. One typhoid carrier was detected. In a miscellaneous group

of food handlers 705 of 749 intestinal specimens did not show *Bacillus typhosus*, while in forty-three cases the specimens were unsatisfactory for laboratory examination and study. One typhoid carrier was detected in this group of miscellaneous food handlers. When the figures for the series are reduced to percentages, it is found that 94.9 per cent of the specimens were negative for *Bacillus typhosus*, that 4.8 per cent were unsatisfactory for laboratory examination and that 0.3 per cent were positive for *Bacillus typhosus*.

Endocrinology, Los Angeles

21: 169-312 (March) 1937

- Studies on Adaptation. H. Selye, Montreal.—p. 169.
Statistical Survey of Endocrinopathies Among Young Delinquents. N. M. Taylor and R. L. Schaefer, Detroit.—p. 189.
*Observations on "Prediabetes." H. R. Rony, Chicago.—p. 195.
Effect of Cortin on Sodium Potassium, Chloride, Inorganic Phosphorus and Total Nitrogen Balance in Normal Subjects and in Patients with Addison's Disease. G. W. Thorn, Helen R. Garbutt, F. A. Hitchcock and F. A. Hartman, Columbus, Ohio.—p. 202.
Effect of Cortin on Renal Excretion of Sodium, Potassium, Chloride, Inorganic Phosphorus and Total Nitrogen in Normal Subjects and in Patients with Addison's Disease. G. W. Thorn, Helen R. Garbutt, F. A. Hitchcock and F. A. Hartman, Columbus, Ohio.—p. 213.
Treatment of Undescended Testes with Anterior Pituitary-like Substance. W. O. Thompson, A. D. Bevan, N. J. Heckel, E. R. McCarthy and Phebe K. Thompson, Chicago.—p. 220.
Evaluation of Hormone Therapy for Undescended Testes in Man. A. J. Cramer Jr., Buffalo.—p. 230.
Type and Degree of Gonadal Stimulation Induced in Hypophysectomized Male Rats Parabolically Joined with Castrated, Cryptorchid and Normal Partners. E. Cutuly, D. R. McCullagh and Elizabeth Cutuly, Cleveland.—p. 241.
Interrelationship of Pituitary Sex Hormones in Ovulation, Corpus Luteum Formation, and Corpus Luteum Secretion in Hypophysectomized Rabbit. M. A. Foster, Ruth Caldwell Foster and F. L. Hisaw, Madison, Wis.—p. 249.
Some Factors Influencing Vitalization of Ovarian Graft and Production of Sex Hormones in Male Rat. C. A. Pfeiffer, New York.—p. 260.
Production of Estrogenic Hormone by Transplantable Ovarian Carcinoma. L. C. Strong, W. U. Gardner and R. T. Hill, New Haven, Conn.—p. 268.
Effects of Thyroidectomy, Castration, Anterior Lobe Administration and Pregnancy on Experimental Diabetes Insipidus in Cat. W. R. Ingram and C. Fisher, Iowa City and Chicago.—p. 273.
Effect of Adrenalectomy and Thyroidectomy on Ketonuria and Liver Fat Content of Albino Rat Following Injections of Anterior Pituitary Extract. Edith G. Fry, Philadelphia.—p. 283.

Observations on Prediabetes.—Rony believes that the high incidence of obesity in diabetes indicates that some relationship exists between these two conditions. In consequence of this contention the presence of low sugar tolerance in obese persons has come to be regarded as a danger sign of diabetes (prediabetes). This prognostic evaluation is the more conspicuous as low sugar tolerance in other clinical conditions is, as a rule, not thought to be conducive to diabetes. He has had twenty obese patients with low sugar tolerance under observation for from one to nine years in order to find out when and under what conditions manifest signs and symptoms of diabetes would appear. None of them developed diabetes. As the patients received instructions to follow a low caloric diet, one might think that the undernutrition was instrumental in preventing the development of diabetes. However, at least six of the patients failed to restrict their food intake. It appears therefore that low sugar tolerance observed in obese persons is not, in itself, indicative of a danger of diabetes. In this respect low sugar tolerance in obesity does not seem to differ from the low sugar tolerance observed in other conditions. However, there is a notable difference between obese persons with low sugar tolerance and normal persons: the former invariably show a marked improvement of their sugar tolerance, while the latter are known to respond with a marked decrease of sugar tolerance. The author suggests that this peculiar difference may be due to the rôle of the fat tissue in blood sugar regulation. During the first three hours following a dextrose test meal, dextrose accumulation in tissues other than the liver constitutes the major mechanism of blood sugar regulation. There is uncontested evidence that among other tissues the fat tissue may prominently participate in the mechanism of blood sugar removal after dextrose ingestion. Previous undernutrition tends to make the fat tissues capable of absorbing large amounts of sugar from hyperglycemic blood. The basic effect of undernutrition on carbohydrate metabolism—be it to decrease insulin sensitiveness or something else—

may be the same in normal as in obese persons. In individuals with small amounts of fat tissue, this effect appears in the form of decreased dextrose tolerance. In persons with large amounts of excess fat tissue the same effect is compensated by accumulation of carbohydrate in the fat tissue, with the result that the blood sugar time curve becomes flatter, giving the picture of improved dextrose tolerance.

Illinois Medical Journal, Chicago

71: 185-276 (March) 1937

- Hip Fracture Treatment by the Roger Anderson Technic. H. D. Junkin, Paris.—p. 199.
Fracture of Neck of Femur Treated by Steel Pin Method of Fixation. H. A. Sofield, Chicago.—p. 200.
The Whitman Spica Cast in Fractures of Neck of Femur. H. E. Cooper, Peoria.—p. 204.
Failures in Natural Conception Control and Their Causes. L. J. Lutz and E. Reiner, Chicago.—p. 210.
Rate of Disappearance of Bacteria from Skin of Normal Eyelids and Normal Conjunctiva. G. H. Gowen, Springfield.—p. 216.
Calcinosis Cutis with Heterotopic Bone Formation. J. G. Fieber, Chicago.—p. 219.
Rectal Fistula, Complicated Horseshoe Type. M. H. Streicher, Chicago.—p. 224.
Skin Manifestations of Drug Intoxications: Dermatitis Medicamentosa. W. J. Morginson, Springfield.—p. 226.
Scopolamine and Atropine Cycloplegia: Comparative Study. L. Belman, Chicago.—p. 229.
Review of Angina Pectoris and Coronary Disease. R. S. Berghoff, Chicago.—p. 234.
The Ophthalmoscopic Signs of Failing Health. A. J. Bedell, Albany, N. Y.—p. 238.
Clinical Experience in Treatment of Arthritis with Massive Doses of Vitamin D. I. E. Steck, Chicago.—p. 243.
Prostatitis and Vesiculitis: Treatment with Local Heat. W. H. Kennet, Chicago.—p. 248.
Repercussion Therapy. E. G. C. Williams, Danville.—p. 257.
Sepsis of Cryptogenic Origin. F. Stenn and W. Zeiter, Chicago.—p. 261.
Dividends of Depression. A. R. E. Wyant, Chicago.—p. 262.
Physical Pain and Mental Suffering in Workmen's Compensation Cases. K. Garve, Los Angeles.—p. 264.
Present Status of Immunization Against Contagious Diseases. L. Frech, Decatur.—p. 267.

Journal of Pediatrics, St. Louis

10: 295-436 (March) 1937

- Antirachitic Potency of Ergosterol Activated by Low Velocity Electrons: Clinical Evaluation. I. McQuarrie, W. H. Thompson, A. V. Stoesser and L. G. Rigler, Minneapolis.—p. 295.
Epilepsy in Childhood: I. Statistical Study of Clinical Types. L. Wilkins, Baltimore.—p. 317.
Id.: II. Incidence of Remissions. L. Wilkins, Baltimore.—p. 329.
Id.: III. Results with Ketogenic Diet. L. Wilkins, Baltimore.—p. 341.
*Rat-Bite Fever with Demonstration of *Spirillum Minus*: Case. O. Bloch Jr. and H. Baldock, Louisville, Ky.—p. 358.
*Late Results of Treated Childhood Hypothyroidism: Two Case Reports. Leona M. Bayer and A. W. Snoke, San Francisco.—p. 361.
Atresia of Pulmonary Orifice with Intact Interventricular Septum. M. M. Steiner, Brooklyn.—p. 370.
Progressive Facial Hemiatrophy: Report of Two Cases with Cerebral Calcification. Katharine K. Merritt, New York; H. K. Faber, San Francisco, and Hilde Bruch, New York.—p. 374.
New Double Telescoping Cannula for Continuous Intravenous Therapy. S. Karelitz, New York.—p. 396.

Rat-Bite Fever with Demonstration of *Spirillum Minus*.—Bloch and Baldock report their case of rat-bite fever, in a girl 3 years of age, because among more than eighty cases of the disease reported from twenty-three states only thirteen had the diagnoses proved by the demonstration of the causative spirillum and because no authentic case has yet been reported from Kentucky. In searching the darkfield preparations for spirilla, after intraperitoneal inoculation of white mice, it was observed that often for the first hour after the drop of blood was placed on the slide no spirilla could be found; then they would begin to appear, shooting to and fro in the spaces among the red cells. In addition to the spirilla, several other moving bodies were seen, which might possibly cause confusion in diagnosis, if misinterpreted: a motile bacterium appearing in the preparations after an hour or two, a very fine, wavy, scintillant filament attached to red cells and fluttering in currents in the plasma and a small, refractile, rapidly moving particle seen inside the red cells, especially if hemolysis has been produced by adding distilled water to the preparation. Both of the last two objects are seen in normal mouse blood. A fourth possibility of error is the occurrence

of spirilla in the blood of the mouse before inoculation. For this reason a negative examination, preceding the positives, is important as a control.

Late Results of Treated Childhood Hypothyroidism.—Bayer and Snoke give the original status and progress of two children with thyroid deficiency, onset approximately at 1 year and 2 months, respectively. They have been followed under treatment from approximately ages of 4 to 18 years and 2 to 11 years. Both children had at the beginning the appearance and build characteristic of thyroid deficiency and a significant retardation in height and in bony and mental development. There was complete restitution of osseous development in both children. The older girl has developed a nicely proportioned body with quite a delicate face, but she has remained permanently dwarfed and her intellect has not developed beyond the ten year six months level. The younger one, on the other hand, has retained her thickset build but has compensated completely in height and mentality.

Journal of Pharmacology & Exper. Therap., Baltimore 59: 241-358 (March) 1937

- Study of Sodium Salt of 3-Amino-4-Beta-Hydroxyethoxyphenylarsonic Acid in Experimental Trypanosomiasis and Syphilis and in Clinical Syphilis and Neurosyphilis. A. L. Tatum, C. C. Pfeiffer, M. L. Kuhs, W. F. Lorenz and J. T. Green Jr., Madison, Wis.—p. 241.
- Duration of Acquired Tolerance to Ethyl Alcohol. H. Newman and J. Carl, Palo Alto, Calif.—p. 249.
- Nystagmic Head Deviation, Selective Action of an Aliphatic Bromine Compound. S. Loewe, New York.—p. 253.
- *Nicotine Toxicity: III. Effect of Nicotine-Containing Diets on Estrus Cycle. R. H. Wilson and F. De Eds, San Francisco.—p. 260.
- Study of Choline Esterase. M. H. Roepke, Toronto.—p. 264.
- Effect of Small Doses of Potassium Iodide on Thyroid Gland of the Guinea-Pig. E. S. Margolin, St. Louis.—p. 277.
- Action of Potassium Chloride and of Calcium Chloride on Adrenals of Cat. G. Katz and Gertrud Katz, New Orleans.—p. 284.
- Analgesia Produced by Nitrous Oxide, Ethylene and Cyclopropane in Normal Human Subject. M. H. SeEVERS, J. H. Bennett, H. W. Pohle and E. W. Reinardy, Madison, Wis.—p. 291.
- Effect of Decolin Sodium on Intact Intestine of Nonanesthetized Dog. C. M. Gruber, Philadelphia.—p. 301.
- Action of Strychnine and Ethyl Strychnine on Normal and Disturbed Respiratory Function. M. Aiazzi-Mancini and L. Donatelli, Florence, Italy.—p. 304.
- Antisymphathomimetic Action of Dioxane Compounds (F883 and F933), with Especial Reference to Vascular Responses to Dihydroxyphenyl Ethanolamine (Arterenol) and Nerve Stimulation. K. I. Melville, Montreal.—p. 317.
- Sodium Bismuthate Soluble in Experimental Syphilis. P. J. Hanzlik, San Francisco.—p. 328.
- Elastic Limits of Plasma Gels. L. F. Shackell, New Brunswick, N. J.—p. 333.
- Action of Morphine on Contractions of Nonpregnant Uterus in Unanesthetized Dogs and Rabbits. D. Slaughter and E. G. Gross, Iowa City.—p. 350.

Effect of Nicotine-Containing Diets on Estrous Cycle.—Wilson and De Eds noticed that the feeding of diets containing 0.025 per cent of nicotine definitely altered the estrous cycle. The facts that the rats ate less than the normal amount of food and that an equally severe estrual disturbance was produced by decreasing the intake of an adequate diet support the idea that the results were due to a state of malnutrition rather than to a direct action of nicotine. This is in harmony with the existence of normal estrus in rats reported by others, in which the nicotine was injected periodically and presumably did not interfere with a normal food intake. The decreased food intake resulting from oral ingestion of nicotine in the food is due possibly to gastro-intestinal disturbances, one of which is probably an impaired appetite.

Laryngoscope, St. Louis

47: 77-146 (Feb.) 1937

- Fundamental Pathology of Larynx. J. D. Kernan, New York.—p. 77.
- Some Problems in Cosmetic Surgery of the Nose. A. Kovacs, Milwaukee.—p. 92.
- Nasal Hemorrhage: Ligation of Anterior Ethmoid Artery: Case Report. H. M. Goodyear, Cincinnati.—p. 97.
- Contribution to Treatment of Vasomotor Rhinitis. A. Lewy, Chicago.—p. 100.
- Historical Aspects of Bone Conduction. N. H. Kelley, Iowa City.—p. 102.
- Twenty Years' Experience with Iodine Powder (Sulzberger) in Conservative Treatment of Aural and Nasal Suppuration. M. D. Lederman, New York.—p. 110.
- Foreign Body in External Auditory Canal Trapped by Exostosis. H. J. Hara, Los Angeles.—p. 126.

Medical Annals of District of Columbia, Washington

6: 53-86 (March) 1937

- Ectopic Pregnancy: Some High Lights in Its History. G. J. Brilmyer, Washington.—p. 53.
- Use of Pregl's Solution in Treatment of Ocular Infections. R. A. Cox, Washington.—p. 61.
- *Infectious Diarrheas in Children. J. Rose and M. M. Schapiro, Washington.—p. 64.
- Court of Appeals Decisions, with Excerpts of Evidence in Cases Brought By and Against Washington Physicians. F. A. Fenning, Washington.—p. 67.

Infectious Diarrheas in Children.—In 194 cases of true infectious diarrhea seen during a period of four years, Rose and Schapiro found that in the District of Columbia the greatest number of cases are due to Eberthella paradysenteriae Hiss, while workers in Maryland, West Virginia and New York find that from 25 to 80 per cent of their cases are due to Eberthella paradysenteriae Flexner. The reports found in the literature relating to the bacteriology of the stools from infants with diarrhea show great variation as to those in which the dysentery bacillus was found. The lack of uniformity seemed to depend on (1) the technic used in procuring material for culture, (2) the type of patient under observation, (3) seasonal variation in incidence of dysentery infection and (4) geographic and environmental locality. The fact that there is no characteristic lesion found in the gastro-intestinal tract of the majority of infants succumbing to this condition indicates that factors other than gastro-intestinal damage must be operative, at least in those cases in which such specific disease as dysentery can be excluded. The question of age distribution is of prime importance if one is to seek adequate measures to combat this scourge of infancy. The study of the age distribution and racial distribution of the infectious diarrhea at the Children's Hospital brings out the very important point of the higher incidence in Negro children, mainly because of their socio-economic status and accompanying ignorance. A close inspection readily reveals the prime factors which are the causative or rather catalytic factors in the development of dysentery. The majority of the white patients came from a similar socio-economic status: small hamlets and towns of nearby Virginia and Maryland. The problem apparently hinges largely on the socio-economic status of the patient's parents. The highest incidence occurred between the ages of 6 to 12 months. It is at this period in life that the baby is first weaned and comes in contact with food of a nature not prepared especially for him. It is during this time that most of the noninfectious diarrhea are apt to occur, since it takes some time for the gastro-intestinal tract of the infant to accustom itself to a new type of diet. It is a well known fact that rarely does dysentery develop in exclusively breast-fed infants.

Minnesota Medicine, St. Paul

20: 135-198 (March) 1937

- Value of, and Indications for, Intraspinal Injections of Alcohol in Relief of Pain. A. W. Adson, Rochester, Minn.—p. 135.
- Bone Marrow and Leukopenia. S. H. Boyer Jr., Duluth.—p. 140.
- *Effect of Barometric Pressure on Incidence of Cerebral Hemorrhage: Preliminary Study. G. R. Kamman, St. Paul.—p. 148.
- Traumatic Arthritis. J. Morrow, Austin.—p. 153.
- Diagnostic Significance of Hemoptysis. H. C. Hinshaw, Rochester.—p. 156.
- Nonspecific, Nonmalignant Lesions of Vagina and Uterine Cervix. M. C. Piper, Rochester.—p. 158.
- X-Ray Diagnosis of Placenta Praevia in General Practice. R. E. Priest, Worthington.—p. 163.
- Mandelic Acid Treatment of Urinary Tract Infection. L. R. Prins, St. Paul.—p. 167.
- Clinical Aspects of More Common Fractures. H. B. Macey, Rochester.—p. 171.
- Affective Reaction Types of Psychoses: Presentation of Case. J. Lohmann, Fergus Falls.—p. 174.
- Schizophrenia. L. W. Katzberg, Fergus Falls.—p. 177.

Effect of Barometric Pressure on Incidence of Cerebral Hemorrhage.—To determine whether cerebral hemorrhage is influenced by atmospheric pressure, Kamman studied the necropsy of the last case of cerebral hemorrhage that was acceptable for study (Oct. 4, 1935) and worked back through the records until a series of 150 cases had been obtained (Sept. 19, 1927). The greatest percentage of deaths from cerebral hemorrhage occurred during the seventh decade in men and during the fifth in women. When the direction in which the

barometer was moving is considered, it is found that it was rising in eighty cases, falling in sixty-five and stationary in five. In other words, a change in barometric pressure occurred when 145 of the 150 patients died. In 55.2 per cent it was rising and in 44.8 per cent it was falling. Since a trace of a fall occurs twice as often as a trace of a rise, whereas a great rise occurs eight times as frequently as a great fall, it seems that, even if the data are not sufficient to study the relationship between the incidence of cerebral hemorrhage and barometric pressure by actual statistical methods of correlation, an approach to the problem may be made by studying the frequency distribution of the change in barometric pressure during the twenty-four hour period preceding the day on which the hemorrhage occurred. By computation of this frequency distribution it is observed that the average change in barometric pressure for the twenty-four hour periods preceding days on which cerebral hemorrhage occurred is $+0.074$ inch of mercury. Obviously since the general level of atmospheric pressure is not changing over long periods of time, the theoretical average change for all days in extended time would be zero. The series of 145 cases considered, therefore, indicates that cerebral hemorrhage is associated with periods of increasing barometric pressure. The standard deviation in the table, when calculated mathematically, is 0.2426, giving a standard error of the mean of ± 0.0202 . Since 0.074 is more than three times greater than the standard error, it appears entirely reasonable to expect that the value would be proved statistically significant if the data on barometric change in extended time were available.

Missouri State Medical Assn. Journal, St. Louis

34: 73-108 (March) 1937

- Differential Diagnosis of Mediastinal Lesions. J. J. Singer, St. Louis.—p. 73.
Coronary Occlusion. J. Jensen, St. Louis.—p. 77.
Maternal Welfare, with Especial Emphasis on Problems in Missouri. R. R. Wilson, Kansas City.—p. 78.
Tumors of Head and Neck. L. H. Jorstad, St. Louis.—p. 82.
Syphilis and Pregnancy. S. D. Soule, St. Louis.—p. 84.
Pernicious Anemia. H. P. Boughnou, Kansas City.—p. 88.
Milk. H. W. Soper, St. Louis.—p. 90.

New England Journal of Medicine, Boston

216: 411-448 (March 11) 1937

- *Results of Total Thyroidectomy in Heart Disease. T. S. Claiborne and L. M. Hurxthal, Boston.—p. 411.
Age of Harvard Medical School in Relation to That of Other Existing Medical Schools in the United States. F. C. Waite, Cleveland.—p. 418.
Fractures of Mandible and Maxilla. J. A. Doherty, Boston.—p. 425.
Irreducible Dislocation of Ankle. R. L. Maynard, Burlington, Vt.—p. 428.

Results of Total Thyroidectomy in Heart Disease.—

Because of the encouraging reports concerning patients in whom total thyroidectomy had been carried out for heart disease and after actual interviews with such patients, Claiborne and Hurxthal performed their first total thyroidectomy on a patient with heart disease in the Lahey Clinic in December 1933. Since that time twenty-seven patients have been operated on, the last operation having taken place one year ago. Their results have been fairly satisfactory in some cases. This appears to have been due in large part to the fact that many of the patients selected for operation were not extremely ill. In some cases they might have been symptom free while on a regimen of partial rest and inactivity. The average patient is a great deal more careful in following instructions with regard to rest and work after an operation than before. In following the patients with angina pectoris after a total thyroidectomy, it has been obvious that the amelioration of pain is a more or less temporary affair. The grading of the results has had to be changed on several occasions because of favorable effects at first and less satisfactory results later. This does not necessarily discredit a therapeutic procedure, because the progression of the disease must be considered in tabulating results over a period of years. The decrease in the number of total thyroidectomies performed at present is indicative of a swing back from an enthusiastic trial of a new procedure. Physicians caring for patients at home after the total thyroid-

ectomy are noticing, at times, that these patients are in a condition similar to that present before the operation, and consequently they are not so anxious to have other patients undergo such a procedure. There are some patients in whom the operation of total thyroidectomy seems justifiable; however, they are few.

216: 449-492 (March 18) 1937

- Recent Advances in Study of Typhus Fever. H. Zinsser, Boston.—p. 449.
Immunologic Application of Placental Extract. C. F. McKhann, Boston.—p. 450.
Epidemiology of Influenza. W. G. Smillie, Boston.—p. 451.
*Immune Reactions in Patients with Gonococcal Infections. C. S. Keefer and W. W. Spink, Boston.—p. 454.
Immunization in Yellow Fever and Other Virus Diseases. A. W. Sellards, Boston.—p. 455.
Antiserum Treatment of Pneumonia from the Standpoint of Public Health. E. S. Robinson, Jamaica Plain, Mass.—p. 459.
Some Aspects of Pneumococcal Infection in Man. M. Finland, Boston.—p. 460.
Studies on Filarioides: Summary of Remarks. R. P. Strong, Boston.—p. 461.
Trichinosis: Incidence and Diagnostic Tests. D. L. Augustine, Boston.—p. 463.
Study of Pathogenic Rickettsiae in Tissue Culture. H. Pinkerton, Boston, and G. M. Hass, Cambridge, Mass.—p. 466.
Oxygen Therapy: Modification of Box Method for Giving 95 Per Cent Oxygen. A. M. Burgess, Providence, R. I.—p. 467.
Traumatic Intraperitoneal Rupture of Bladder: Report of Case. F. J. C. Smith, Quoddy, Maine.—p. 469.

216: 493-538 (March 25) 1937

- The General Management and Treatment of Obliterative Peripheral Vascular Disease of Lower Extremities. T. C. Pratt, Boston.—p. 493.
Iodine Tolerance Test as an Aid in Diagnosis of Clinical Hyperthyroidism. H. J. Perkin and F. H. Lahey, Boston.—p. 501.

Immune Reactions in Patients with Gonococcal Infections.—Keefer and Spink declare that the gonococcus is killed in vitro by lysis. This is accomplished by a sensitization of the organisms by antibody, and their destruction is completed by complement. There is no evidence that phagocytosis of organisms is important in this process. Different strains vary in their invasive properties, and this is dependent on the presence of natural bacteriolysins and on the ability of the gonococci to survive in areas abundantly supplied with mucus. During and following a gonococcal infection, the bacteriolysin titer of the blood increases. This is seen more often when there are metastatic lesions, such as arthritis. A study of the bactericidal content of synovial fluid indicates that it may be the same as the blood when the fluid is sterile and that it may be lower when the fluid is infected. The presence of mucin may reduce but does not abolish the action of antibody. This is not caused by an alteration of the complement titer of the plasma or synovial fluid. There is some evidence that it interferes with the sensitization of organisms. The addition of antigenococcus serum to blood in vitro and in vivo increases the bacteriolytic titer of the serum. This is of some practical importance in gonococcal bacteremia without endocarditis.

New Jersey Medical Society Journal, Trenton

34: 149-220 (March) 1937

- Serologic Differences in Human Blood, and Their Practical Application. P. Levine, Newark.—p. 155.
Histamine: Its Practical Application and Theory of Its Action. M. Openchowski, Newark.—p. 163.
Cerebral Injuries. J. W. Hurff, Newark.—p. 167.
Orthopedic, Operative and Combined Methods of Treating Convergent Squint. L. Emerson, Orange.—p. 173.
Visual Requirements for Automobile Drivers. E. S. Sherman, Newark.—p. 177.
Hearing of Automobile Drivers. D. MacFarlan, Philadelphia.—p. 182.

New Orleans Medical and Surgical Journal

89: 465-530 (March) 1937

- Diagnosis of Malignancies of Lung from the Pathologist's Standpoint. J. A. Lanford, New Orleans.—p. 465.
Cancer of Cervix. H. G. F. Edwards, Shreveport.—p. 468.
Preoperative Radiation of Cancer of the Breast. L. J. Menville and J. N. Ane, New Orleans.—p. 474.
Postoperative Pulmonary Complications. J. R. Veal and B. D. van Warden, New Orleans.—p. 477.
Treatment of Chronic Varicose Ulcers of Lower Extremities. N. Owen, New Orleans.—p. 483.
Significance of Cardiac Arrhythmias as Encountered in General Practice. W. R. Wirth, New Orleans.—p. 491.
The Physiology of Hypertension. H. Laurens, New Orleans.—p. 507.
The Problem of Vascular Disease. J. E. Knighton Jr., Shreveport, La.—p. 506.

New York State Journal of Medicine, New York

37: 461-542 (March 1) 1937

- Pathology and Treatment of Spinal Injuries. J. E. Scarff, New York.—p. 461.
Silicosis in Modern Foundries: Study of Incidence. J. F. Kelley and R. C. Hall, Utica.—p. 478.
Thoracoscopy and Intrapleural Pneumolysis: Report of Fifty Cases. H. B. Powers, Lake Kashaqua.—p. 482.
Management of Labor Complicated by Rectal Stricture: Report of Eighteen Cases. F. A. Kassebohm and M. J. Schreiber, New York.—p. 484.
Lymphogranuloma Venereum: Report of Case. B. A. Kornblith, New York.—p. 488.
Meningococemia Without Meningitis: Report of Case. F. W. Goundry, Binghamton, and T. H. Phalen, Johnson City.—p. 491.

Meningococemia Without Meningitis.—Goundry and Phalen cite a case of meningococemia unaccompanied by meningitis, which began with chills and fever and was accompanied by headache, joint pain and mental apathy. This was followed by profuse sweating and a generalized rash resembling typhoid roseola. The blood count showed a moderate leukocytosis with a preponderance of polymorphonuclears. Meningococci were found in the blood stream early in the attack. As the patient improved, the blood cultures became negative. There appeared to be no indication for cultures from the petechia and spinal fluid. This condition is probably more common than one realizes because facilities for blood cultures are not always at hand, and enriched culture mediums must be used for the isolation of the meningococcus. The physician is often unmindful of this disease and may easily overlook it, especially in the milder cases. The triad of chills, arthralgia and skin eruption should prompt one to secure an early blood culture. From the therapeutic point of view, specific serum therapy seems the treatment of choice.

Ohio State Medical Journal, Columbus

33: 241-356 (March) 1937

- Treatment of Rheumatoid Arthritis. R. L. Haden, Cleveland.—p. 257.
Carcinoma of the Breast. I. B. Harris, Columbus.—p. 262.
Diagnosis and Treatment of Concretio Cordis: Acetio Cordis. J. McGuire and V. Hauenstein, Cincinnati.—p. 268.
Transfusion Apparatus with Minimal Trauma to Cells. M. Shaweker, Dover.—p. 272.
Takata-Ara Test for Liver Function. F. C. Payne, Dayton.—p. 275.
Tuberosus Sclerosis: Report of Five Cases Including One Case in One of Twins. A. T. Hopwood, Orient.—p. 277.
Practical Aspects in Diagnostic Use of Tuberculin. W. E. Nelson, Cincinnati.—p. 283.
Diagnostic Methods in Industrial Medicine. P. A. Davis, Akron.—p. 286.

Oklahoma State Medical Assn. Journal, McAlester

30: 77-110 (March) 1937

- Prostatic Resection in the Poor Risk Patient. H. M. Spence, Dallas, Texas.—p. 77.
Collapse Therapy in Pulmonary Tuberculosis. F. Moorman, Oklahoma City.—p. 82.
Use of X-Ray in Diagnosis of Breast Lesions. I. H. Lockwood, Kansas City, Mo.—p. 84.
Prenatal Care. Emma Jean Cantrell, Wilson.—p. 87.
Crossed Eyes. J. R. Reed, Oklahoma City.—p. 89.
Eye Malingerers. J. W. Shelton, Oklahoma City.—p. 93.

Pennsylvania Medical Journal, Harrisburg

40: 409-490 (March) 1937

- The Case Against Transurethral Prostatic Resection and Reasons Therefor. G. J. Thompson, Rochester, Minn.—p. 409.
Consideration of Peptic Ulcer. R. S. Boles and B. P. Widmann, Philadelphia.—p. 412.
Refinements of Technic in Barbiturate Obstetric Analgesia. O. J. Toland and J. H. Dugger, Philadelphia.—p. 420.
Renal Anomalies. D. L. Simon, Pittsburgh.—p. 423.
Etiology and Diagnosis of Allergic Rhinitis. J. C. Donnelly, Philadelphia.—p. 426.
Physicians and Social Readjustments. R. J. Behan, Pittsburgh.—p. 430.
Study of Native Agglutinins for Brucella in Human Blood Serums. H. F. Hunt, Danville, and Mary E. Noll, Lewisburg.—p. 432.

Native Agglutinins for Brucella in Blood Serums.—Agglutinins of the Brucella group of organisms have been shown to exist not only in the blood serums from undulant fever patients but in the blood serums of apparently normal individuals as well. Because of this, Hunt and Noll studied the extent and significance of these native agglutinins in 1,000 specimens of blood that were collected without selection of cases from patients or blood donors admitted. Of the 1,000 samples 195 gave positive reactions. Of this number 106, or 10.6 per cent, were considered without significance and eighty-

nine, or 8.9 per cent, significant. Of the 195 positive reactions, 177 reacted both with the Brucella abortus and the Brucella melitensis antigens. Of these 177 reactions, 153 reacted more strongly with Brucella abortus and twenty-four more strongly with Brucella melitensis. Of the remaining positive reactions, fifteen reacted only with the Brucella abortus antigen and three with only the Brucella melitensis antigen. It is concluded that the Brucella abortus agglutinins are far more frequent in human blood serums of individuals of central Pennsylvania than are the agglutinins of the Brucella melitensis, for out of a total of 195 positive reactions 168, or 86.15 per cent, reacted either more strongly or only with the Brucella abortus antigen.

Rhode Island Medical Journal, Providence

20: 35-52 (March) 1937

- Surgery in the Management of Pulmonary Tuberculosis. E. Windsberg, Providence.—p. 35.
The Reorganized State Department of Health. E. A. McLaughlin, Providence.—p. 42.

Southwestern Medicine, Phoenix, Ariz.

21: 75-110 (March) 1937

- Tuberculous Infection With and Without Previous Infection; Rule of Sensitivity; Interpretation of Tuberculin Reactions and X-Ray Films of Children: Cases. H. Randolph, Phoenix, Ariz.—p. 75.
Treatment of Carcinoma of Cervix at City County Hospital. L. Green, El Paso, Texas.—p. 77.
Trachoma Treatment at Fort Apache "Trachoma School." J. C. Hancock, Fort Apache, Ariz.—p. 80.
Certain Complications of Influenza. J. J. Gorman, El Paso, Texas.—p. 83.
Causes and Treatment of Nasal Obstruction. L. L. Albert, Tucson, Ariz.—p. 84.
Experience with Injection Treatment of Hernia. R. F. Palmer, Phoenix, Ariz.—p. 86.
Postpartum Cervix, with Notes on Its Relation to Incidence of Carcinoma. A. G. Murphy, Ignacio, Colo.—p. 88.
Syphilis: Its Ramifications. G. S. Chapin, Hollywood, Calif.—p. 94.
Fractures of Mandible. J. G. Shackelford, Phoenix, Ariz.—p. 96.

Surgery, St. Louis

1: 163-322 (Feb.) 1937

- Treatment of Congenital Openings of Rectum into Vagina: Atresia Ani Vaginalis. V. C. David, Chicago.—p. 163.
*Further Laboratory and Clinical Experiences in Treatment of Chronic, Undermining, Burrowing Ulcers with Zinc Peroxide. F. L. Meloney and Balbina A. Johnson, New York.—p. 169.
Complete Compound Comminuted Fracture-Dislocation of Astragalus. H. E. Conwell, Birmingham, Ala., and R. H. Alldredge, New York.—p. 222.
Operative Treatment of Hydronephrosis Due to Obstruction at Ureteropelvic Junction. C. D. Creevy, Minneapolis.—p. 228.
Effects of Ureteral Occlusion on Blood Flow and Oxygen Consumption of Kidneys of Unanesthetized Dogs. S. E. Levy, M. F. Mason, T. R. Harrison and A. Blalock, Nashville, Tenn.—p. 238.
Cause of Death in Liver Peritonitis: Blood Chemistry Findings in Dogs Subjected to Intraperitoneal Implantation of Fresh, Ground, Adult Dog Liver. H. M. Trusler and H. E. Martin, Indianapolis.—p. 243.
Acute Appendicitis: Review of 518 Cases in the University of Minnesota Hospitals from 1932 to 1935. L. Sperling and J. C. Myrick, Minneapolis.—p. 255.
Evipal Anesthesia: Clinical Study of 300 Cases. J. E. Dunphy, R. E. Alt, Boston, and W. A. Reiling, Dayton, Ohio.—p. 265.
Blood Concentration Produced by Plasmapheresis. H. N. Harkins and P. H. Harmon, Chicago.—p. 276.
Persistent Hypertension Due to Hypothalamic Injury. C. W. Walter and M. J. Pijoan, Boston.—p. 282.

Treatment of Undermining Ulcers with Zinc Peroxide.—Since the publication of their first reports on the favorable effect of zinc peroxide on anaerobic and micro-aerophilic infections, Meloney and Johnson studied in some detail nineteen other cases with chronic undermining burrowing ulcer caused by a micro-aerophilic hemolytic streptococcus. Bacteriologic laboratories equipped to do anaerobic bacteriology are of utmost importance in the recognition of these cases. It would be well if the American College of Surgeons would require class A hospitals to be prepared to do adequate anaerobic bacteriology. The careful application of zinc peroxide will almost invariably halt the spread of this infection. There are certain essential conditions for the success of this treatment. First, the zinc peroxide must have certain physical properties that will provide the necessary environment to inhibit or destroy the causative organisms. These properties may be determined by a simple laboratory test. It must be heated at from 130 to 140 C. for from one to four hours to sterilize it and

mobilize the oxygen. When it is suspended in ten parts by weight of distilled water it sediments rapidly, leaving a clear supernatant fluid. In the course of an hour bubbles of oxygen begin to form in the sediment, which after twenty-four hours becomes flocculent and curdy with the evolution of a considerable quantity of oxygen gas. Five grams in 50 cc. of distilled water should liberate from 10 to 20 cc. of oxygen in twenty-four hours. The next requirement for the successful use of zinc peroxide is that every part of the infected surface must come in contact with it. If this is not possible without operation, undermined flaps and sinuses should be widely opened and all the infected surfaces should be flooded with a creamy suspension of the powder in distilled water, approximately equal parts of water and powder being used. This should be put on in the form of a thick cream which is able to run to all parts of the wound. The wound should then be packed with fine-meshed gauze or silk ribbon soaked in the same material and sealed with petrolatum or zinc oxide gauze to prevent evaporation, drying, crumbling or caking. A fresh dressing should be applied every twenty-four hours. As soon as the undermined flaps have sealed down and new skin has begun to grow in from the margins, the ulcer may be covered with skin grafts of the Reverdin type held in place with a single layer of coarse meshed gauze, sealed to the skin margins with collodion; then a dressing of fine meshed gauze soaked in saline solution should be applied and sealed over with petrolatum gauze to prevent evaporation. The compresses should be removed in twenty-four hours and a thin suspension of zinc peroxide applied over the coarse meshed gauze and sealed in turn with an impermeable covering. Forty-eight hours after the skin graft, the coarse meshed gauze may be carefully removed, leaving the grafts well supplied with blood. Thereafter the grafted area may be flooded daily in the same way as the rest of the wound with a creamy suspension of zinc peroxide. If possible, frequent cultures should be taken of various parts of the wound to indicate the presence or absence of the infecting organism. This disease should not be confused with the gangrenous type of chronic ulceration.

Tennessee State Medical Assn. Journal, Nashville

30: 85-118 (March) 1937

- Some Details in Management of Cases of Enlargement of the Prostate. J. C. Pennington and E. C. Lowry, Nashville.—p. 83.
So-Called "Subacromial Bursitis." C. F. Clayton Jr., Knoxville.—p. 92.
New Departure in Hearing Aids. F. L. Alloway, Kingsport.—p. 99.

Texas State Journal of Medicine, Fort Worth

32: 721-788 (March) 1937

- Tumors of Spinal Cord: Reporting Series of Twelve Cases. A. O. Singleton, T. G. Blocker Jr. and H. Williams, Galveston.—p. 726.
Transurethral Surgery. G. J. Thompson, Rochester, Minn.—p. 735.
*Effect of Hyperthyroidism on Diabetes Mellitus. P. K. Smith, Wichita Falls.—p. 739.
Linitis Plastica. R. P. O'Bannon, Fort Worth.—p. 743.
Some Aspects of Cardiorenthgenography. L. H. Ledbetter, Beaumont.—p. 748.
Incidence of Syphilis in Dallas and Vicinity as Determined by Serologic Methods: Analysis of More than 39,000 Cases. M. D. Bell, Dallas.—p. 753.
Diagnosis and Treatment of Ectopic Pregnancy. M. A. Walker Jr., Paris.—p. 755.
Cystic and Solid Tumors of Ovary. W. R. Cooke, Galveston.—p. 759.
Limitations of Radiation Therapy in Dermatology. P. Brown, Fort Worth.—p. 762.
Pitfalls in Ophthalmology. J. G. Jones, Dallas.—p. 764.
Value of a County Health Unit. W. K. Sharp Jr., New Orleans.—p. 766.

Effect of Hyperthyroidism on Diabetes Mellitus.—Smith points out that there is a distinct similarity between these two diseases in their effect on the human body. Some of the symptoms and signs that are almost interchangeable in hyperthyroidism and diabetes mellitus are: (1) rapid loss of weight, (2) nervous irritability which is more marked in the hyperthyroid state, (3) low respiratory quotient, (4) increased protein metabolism and (5) absent or diminished liver glycogen. In the combination of the two diseases, one is dealing with a patient who may have a metabolic rate twice normal and a caloric intake which may satisfy only one half of his total needs. It follows, therefore, that the remainder of the caloric requirement must come from the patient's own body fat. With the entrance of such a large amount of fat into the metabolic mixture plus the inability to oxidize a normal amount of dex-

trose, the tendency to acidosis is greatly increased. The problem resolves itself into adequate dosages of insulin to cause burning of the proper amount of dextrose and a lowering of the metabolic rate by the use of iodine. The further control of the hyperthyroid state may be accomplished with either surgery or roentgen therapy. The results of irradiation and surgery of the thyroid are equally successful in the control of primary hyperthyroidism. In the condition of adenoma of the thyroid with secondary hyperthyroidism, surgery is the therapeutic method of choice. The rôle of the thyroid in its actions on carbohydrate metabolism is not definitely known; however, it has been shown that it helps mobilize the liver glycogen and, in the hyperactive state, renders a patient insensitive to insulin. This may all be explained by its governing influence on the metabolic rate. For instance, conditions which lower the metabolic rate, such as fasting or wasting diseases, apparently help an uncomplicated diabetes, and conditions which increase the metabolic rate, such as fever, injections of epinephrine, pregnancy or a diet high in protein, intensify a diabetic state.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

45: 119-180 (March) 1937

- Diagnosis and Treatment of Abdominal Pregnancy: Report of Three Illustrative Cases. L. G. McNeile, Los Angeles.—p. 119.
*Masculinizing Tumors of Ovary. Alice F. Maxwell, San Francisco.—p. 134.
Incidence of Carcinoma in Fibroid Uterus. H. Von Geldern, San Francisco.—p. 148.
Uterine Inertia in the First Stage of Labor. D. G. Tollefson and A. M. Webb, Los Angeles.—p. 156.
Conservative Renal Surgery with Particular Reference to Resection of Kidney. E. Hess, Erie, Pa.—p. 168.

Masculinizing Tumors of Ovary.—Maxwell points out that virilism in women may develop from a variety of causes, as is exemplified by the heterosexual manifestations associated with pituitary basophilic adenoma, adrenocortical tumors and hyperplasia, pseudohermaphroditism, the so-called Achar-Thier's syndrome and ovarian neoplasms which possess characteristic biologic function, such as arrhenoblastoma and adrenocortical ovarian inclusions. While it is accepted that sex of the individual is determined at the time of fertilization, the occurrence of heterosexual phenomena leads to speculation as to the completeness of the demarcation of the characteristics regarded as specific to either sex. The embryonic bisexual anlagen of the gonads offer a medium for sexual ambiguity. Nor is there mutual exclusion even in normal individuals of the gonadal secretions of the opposite sex, for androgen has been demonstrated in the body fluids of women and estrogen in the tissues of men. These observations lead to the conclusion that, while the sex of the individual is determined at the moment of the union of the maternal and paternal cells, the somatic expression and biologic function of the sexual apparatus are largely dependent on the nicety of balance and the orderly interrelationship of all the complex units of the endocrine system.

West Virginia Medical Journal, Charleston

33: 97-144 (March) 1937

- Psychology of Childhood. E. F. Reaser, Huntington.—p. 97.
Study of Silicosis. G. Fordham, Powellton.—p. 106.
Furious Rabies with Necropsy Findings: Case. F. J. Holroyd, Princeton.—p. 109.
Intestinal Obstruction Mortality. E. B. Tucker, Morgantown.—p. 113.
Bilateral Bony Ankylosis of Jaw. H. G. Weiler, Wheeling.—p. 117.
Fever of Unknown Origin. F. R. Whittlesey, Morgantown.—p. 120.
Importance of Periodic Physical Examinations. J. J. Brandabur, Huntington.—p. 125.

Wisconsin Medical Journal, Madison

36: 149-232 (March) 1937

- Tumors of Urinary Bladder. J. B. Wear and P. Kundert, Madison.—p. 165.
Urinary Calculus: Modern Management: Discussion of Stone Forming and Dissolving Factors: Preliminary Report on Vitamin A Injections, Diet and Lactic Acid Therapy. W. M. Kearns, Milwaukee.—p. 170.
Blood Calcium Studies in Urinary Lithiasis. C. R. Marquardt, Milwaukee.—p. 177.
Diagnosis and Treatment of Traumatism and Foreign Bodies in Urteral Tract. R. Irwin, Milwaukee.—p. 182.
Heterophoria: Incidence of, in Routine Refractions with an Analysis of 2,000 Cases. H. G. Martin, Milwaukee.—p. 186.
Syphilis in Wisconsin. W. F. Lorenz, Madison.—p. 188.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

12: 1-70 (Feb.) 1937

- *Chronic Miliary Tuberculosis in Children. R. H. Fish.—p. 1.
- Milk Curd: Its Mechanism and Modification. I. N. Kugelmass.—p. 25.
- *Significance of Plasma Phosphatase in Diagnosis and Prognosis of Rickets. N. Morris, Mary M. Stevenson, Olive D. Peden and Jean M. D. Small.—p. 45.
- Persistent Truncus Arteriosus Communis with Microphthalmos, Orbital Cyst and Polydactyly. H. A. Harris and G. C. Thomson.—p. 59.

Chronic Miliary Tuberculosis in Children.—Fish presents a survey of the literature, discusses the differential diagnosis and cites ten cases of chronic miliary tuberculosis occurring in childhood with recovery in four. Microscopic sections of the lungs in three of the fatalities demonstrated the healing process in individual miliary nodules. From his observations he concludes that miliary tuberculosis runs a chronic course more frequently than is generally recognized; recovery occurs in a fair proportion of these chronic cases. Recovery is most common when the nodules are confined to the lungs, but it may also take place in generalized cases and even when the onset of the illness is moderately acute. The pathology of the lesions in chronic and acute cases is essentially the same. Healing of individual miliary tubercles takes place by a process of fibrosis which usually leads to their complete disappearance from the pulmonary roentgenograms. Massive caseous glands in the upper mediastinum are observed frequently in the juvenile type of chronic miliary tuberculosis; the presence of these glands may be responsible for the tendency to recurrent episodes of tuberculous bacillema, which is a feature of these cases. Any one of these episodes may give rise to fatal meningitis; the risk of this complication occurring is, however, considerably diminished if strict rest in bed is maintained until the roentgenogram is clear.

Plasma Phosphatase in Diagnosis and Prognosis of Rickets.—Morris and his associates try to assess the value of plasma phosphatase as a diagnostic test for rickets and also as a means of determining the presence and rate of healing. The results are based on the examination of 506 children less than 2 years of age who either had manifest rickets or might possibly have been suffering from the effects of vitamin D insufficiency. The method employed for estimating phosphatase was that devised by Jenner and Kay. In a series of healthy infants of the same age the limits for plasma phosphatase fell between 3.4 and 10.5 units, with an average of 6.92 units. Any value above 11 units has been considered to be higher than normal. In 84.1 per cent of the 506 children with clinical or roentgen evidence of rickets the plasma phosphatase was increased above normal limits. It is suggested that a rise in plasma phosphatase is an earlier manifestation of the rachitic state than that provided by ordinary clinical or roentgen examination. A rough parallelism was observed between the height of the phosphatase and the severity of the rachitic process, but the level of the phosphatase cannot be taken as an index of severity in the individual patient. A moderate degree of correlation was observed between the rise in phosphatase and the fall in phosphorus and calcium phosphorus product, especially the latter, and it would appear that, of the three, an increase in plasma phosphatase is the most delicate test of the rachitic state, although an alteration in phosphatase alone should not be used as conclusive evidence of the presence or absence of rickets. The plasma phosphatase continues to rise in untreated active rickets. Administration of vitamin D prevents this rise and causes a fall in from two to three weeks. The rate of fall depends on the dosage of vitamin D. On the administration of ordinary therapeutic doses, normal limits may not be reached before the lapse of more than three months. The phosphatase is increased whenever the supply of calcium is unable to meet the demand of the bone cells as a result of defective intake of minerals or vitamin D.

British Journal of Ophthalmology, London

21: 113-160 (March) 1937

- Hemophilia and Color Blindness Occurring in Same Family. W. J. B. Riddell.—p. 113.
- "Twincentric" Lenses. F. A. Williamson-Noble.—p. 116.
- Development of Modern Methods of Estimating Refraction. W. B. E. McCrea.—p. 118.
- Study of 288 Patients Examined with Ophthalmometer. C. Berens.—p. 132.

British Journal of Radiology, London

10: 73-140 (Feb.) 1937

- Delivery, Estimation and Control of Tissue Dosage in Radiation Therapy. C. A. P. Wood and T. A. Green.—p. 73.
- Directional Caliper: Its Clinical Uses in Radiation Therapy. T. A. Green.—p. 95.
- Useful Accessory to Directional Caliper. J. Read.—p. 102.
- Five-Gram Radium Unit, with Pneumatic Transference of Radium. L. G. Grimmett.—p. 105.
- Measurement of Distribution in Water of Intensity of Radiation from Five-Gram Radium Unit No. II of Radium Beam Therapy Research. E. E. Wright.—p. 118.
- Lateral View of Lung Apexes (Interclavicular Projection of Thoracic Inlet). E. W. Twining.—p. 123.

British Medical Journal, London

1: 431-482 (Feb. 27) 1937

- Nocifensor System of Nerves and Its Reactions. T. Lewis.—p. 431.
- Food and Nutrition. E. P. Cathcart.—p. 435.
- "Disposition" and Specific Allergen in Asthma, Hay Fever and Other Allergic Conditions. E. M. Fraenkel.—p. 438.
- Posthysterectomy and Puerperal Tetanus: Study of Bacteriology of Obstetric and Gynecologic Dressings. R. J. V. Pulvertaft.—p. 441.
- Prontosil Album in Puerperal Sepsis. M. A. Foulis and J. B. Barr.—p. 445.

1: 483-540 (March 6) 1937

- *Nasopharyngeal Sepsis in 2,056 Cases of Mental Disorder: Importance of Closed Sepsis. T. C. Graves.—p. 483.
- Zinc Protamine Insulin: Clinical Trial of New Preparation. R. D. Lawrence and Nora Archer.—p. 487.
- Nocifensor System of Nerves and Its Reactions. T. Lewis.—p. 491.
- Active Immunization Against Tetanus. H. H. Brown.—p. 494.
- Death Following Blood Transfusion: Notes on Two Cases. F. Pygott.—p. 496.

Nasopharyngeal Sepsis in Cases of Mental Disorder.—Graves summarizes the observations and treatment of 2,056 cases of mental disorder—mainly certified—by three ear, nose and throat surgeons working separately during the nine years from 1927 to 1935 in the Birmingham Mental Hospital. On admission all patients had a routine investigation of the mental and physical states, including a preliminary examination for disease conditions in the ear, nose and throat. Patients in whom a history of mental or physical symptoms suggested such a condition were further investigated by the visiting rhinologist, employing special methods of examination when desirable. On these observations and after consultation between the visiting and resident medical staffs, cases thought suitable on mental and physical grounds for further investigation and likely to tolerate the appropriate anesthesia were selected. Appropriate treatment was then given, although this stage of active investigation and treatment was not generally carried out until the mouth was free from sepsis. In tuberculosis, hemoptysis may first draw attention to the disease. Symptoms of dementia paralytica may be the first indication of syphilis. Mental depression following influenza may continue until an area of residual infection in the nasal sinuses is treated effectively, when the psychotic disturbance passes away. In some cases of nasal sinus disease mental symptoms may be among the first of the signs and symptoms directing the attention of the family or physician to the fact that the patient is ill. In some cases in which nasal sinus disease is present an examination of the nasal passages may show only doubtful signs or none at all, the condition being one of closed sepsis. In such cases an inflamed sinus is unable to discharge its exudate owing to closure of its ostium, and as a result internal absorption and extension of inflammation takes place from the diseased membrane. If drainage is prevented, complications arise, one of which is delirium, which sometimes precedes death. Should the patient survive, mental disorder and perhaps certifiable insanity may ensue and continue, as the result of the persistence in an important site of a small area of "occult" sepsis, which acts as the primary port of entrance of infection and is responsible for the obvious and dramatic collection of pus elsewhere.

Journal of Neurology and Psychopathology, London
17: 193-288 (Jan.) 1937

- Cerebral Circulation: Some New Points in Its Anatomy, Physiology and Pathology. T. J. Putnam.—p. 193.
- Investigation of Absorption of Ultraviolet Light by Cerebrospinal Fluid in Various Disease States. E. F. Skinner.—p. 213.
- Associated Facial, Vocal and Respiratory Components of Emotional Expression: Experimental Study. H. W. Magoun, D. Atlas, E. H. Ingersoll and S. W. Ranson.—p. 241.
- Paroxysmal Trigeminal Pain with Tumors of Nervus Acusticus. H. L. Parker.—p. 256.
- Diagnosis of Chronic Subdural Hematoma of Traumatic Origin. G. S. Hall.—p. 262.

Journal Obst. & Gynaec. of Brit. Empire, Manchester
43: 1037-1256 (Dec.) 1936

- Further Observations on Relation of Pregnancy to Hypertension and Chronic Nephritis. G. W. Theobald.—p. 1037.
- *Achlorhydria as an Etiologic Factor in Pruritus Vulvae, Associated with Kraurosis or Leukoplakia. B. H. Swift.—p. 1053.
- Place of Induction of Premature Labor in Treatment of Pelvic Disproportion. A. H. Davidson.—p. 1078.
- Treatment of Amenorrhea and Kraurosis Vulvae with Follicular Ovarian Hormone. G. L. Foss.—p. 1091.
- Red Light Treatment in Gynecology. H. Heymans van Amstel.—p. 1114.
- *Study of Variations in Number of Blood Platelets During Menstrual Cycle. S. Genell.—p. 1124.
- Recent Findings in Solid Ovarian Tumors. W. Schiller.—p. 1135.
- New Ergot Preparation: Ergometrine. E. Hauch and E. Möller-Christensen.—p. 1145.
- Two Rare Cases of Inversion of the Uterus. Margaret Fairlie.—p. 1152.
- Roentgen Pelvimetry. H. Litwer.—p. 1158.
- Conservative Therapeutics in Gynecology. H. de Sa.—p. 1162.
- Minor Degrees of Calcium Deficiency in Pregnancy in India. P. C. Dutta.—p. 1170.
- Effect of Administration of Estrone and Progesterone on Human Uterus. M. C. Watson.—p. 1175.
- Etiology of Toxemias of Pregnancy. E. K. Maclellan.—p. 1180.
- Lithopedion. W. C. W. Nixon.—p. 1183.
- Theca Cell Tumor of Ovary in Woman Aged 92 Years: Case. J. H. Patterson and W. M. H. McCullagh.—p. 1186.
- Periendothelioma of Fallopian Tubes. J. W. Bride.—p. 1191.
- Accessory Lobe of Lung. H. Carter and H. A. Osborn.—p. 1194.

Achlorhydria an Etiologic Factor in Pruritus Vulvae.

—Swift points out that a common factor is present in pruritus vulvae, leukoplakia, kraurosis vulvae and leukoplakic vulvitis and that this factor is achlorhydria, which causes a deficiency of absorption of vitamin A from the diet. Changes in epithelial structures result from this deficiency. These skin changes do not always conform to the same clinical type but depend on the stage of the disease, and so in the past they have been given many different names. However, the original cause is the same in all types. Occasionally an achlorhydria is not present, and it has been found that in these cases the diet itself is deficient in vitamin A. The addition of diluted hydrochloric acid to the normal diet of forty-two women suffering from intractable pruritus vulvae with achlorhydria relieved the pruritus in the majority of cases with great improvement of the local vulval condition. Vitamin A in the form of cod liver oil should also be given. Excision of the vulva is not necessary in these cases except in those in which a malignant change is suspected. Epithelioma of the vulva should become increasingly more rare if this chronic irritation is relieved at an early stage by the giving of oil and acid. Achlorhydria is often present in cases of pruritus vulvae in which the irritation has not been relieved by curing the supposed primary cause. The diluted hydrochloric acid is given by mouth, a teaspoonful in a glass of water. Half of this solution is to be sipped during the meal and the other half drunk after the meal. The acid is to be taken with each meal. The acid must be taken for many weeks, as in a number of cases the irritation has returned when the patients have left off the acid, if only for a few days. A teaspoonful of cod liver oil is taken three times a day. Local treatment is prescribed to patients with very bad irritation. A cream made of zinc oxide and starch with sweet oil of almonds has been found to be most soothing. It can be cleaned off the vulva by wiping with more almond oil. In other cases a local anesthetic ointment has been used. However, as soon as the patient had started taking the hydrochloric acid the pruritus usually started to improve. Any associated cause or causes should also be treated. When infection has been superimposed on the hypertrophic or atrophic conditions, local treatment should be given, such as sitz baths and the application of a soothing lotion. At the same time the original cause, the achlorhydria, should also be treated with acid.

Variations in Number of Blood Platelets in Women.—Genell performed 1,433 determinations on thirty-eight women in studying the variations in the number of blood platelets during the normal menstrual cycle. On the first day of menstruation there is a fall in the number of platelets from about 230,000 per cubic millimeter to about 200,000. During the first ten days of the cycle there is a slow rise in the number of platelets, the culmination being reached about the eleventh day with about 265,000 per cubic millimeter. From the eleventh to about the twenty-first day the number slowly declines to about 230,000. During the last week of the cycle the number remains constant at 230,000 until the sudden diminution occurs at the onset of menstruation. These variations are not due to variations in the concentration of the follicular hormone. The author shows that a similar increase in platelets occurs after parturition, after abortion and after operation. As the change in the concentration of estrogen after parturition and abortion is quite the reverse of that after menstruation, and the estrogen can have no connection with postoperative changes, it is not possible to regard the postmenstrual increase in platelets as standing in a causal relation to the hormone of the follicle. The author explains the analogous increase in platelets after menstruation, parturition, abortion and operation as a reaction of the organism to resorption of necrosed material and he finds this explanation corroborated by the fact that the degree and duration of the platelet increase on these different occasions occur together with the degree and duration of the resorption.

Journal of Tropical Medicine and Hygiene, London

40: 25-36 (Feb. 1) 1937

- Filariasis in Antigua. F. W. O'Connor.—p. 25.
- Vitamin Deficiency in Bilharzia Disease and Some Successes with Anthiomaline. F. G. Cawston.—p. 31.

40: 37-52 (Feb. 15) 1937

- Hematophagous Fly *Musca Sorbens*, Wied., in Relation to Transmission of Leprosy. W. A. Lamborn.—p. 37.
- Filariasis in Antigua. F. W. O'Connor.—p. 42.

Lancet, London

1: 369-426 (Feb. 13) 1937

- *Anorexia Nervosa, with Especial Reference to Physical Constitution. J. H. Sheldon.—p. 369.
- Intranuclear Inclusions in Epithelium of Human Male Genital Tract. J. R. Gilmour.—p. 373.
- Treatment of Fracture of Neck of Femur: New Principle of Wire Introduction for Smith-Petersen Nail. E. T. Bailey.—p. 375.
- *Fate of Thorium Dioxide (Thorotrast) in Cerebral Arteriography. D. W. C. Northfield and Dorothy S. Russell.—p. 377.
- Postural Drainage. H. V. Morlock.—p. 381.
- Thrombosis of Popliteal and Femoral Arteries. A. M. Boyd.—p. 382.

Nervous Anorexia and Physical Constitution.—Sheldon emphasizes physical aspects of nervous anorexia which suggest that in some cases there is an underlying hypofunction of the anterior pituitary, but he does not intend to amend the current conception of the disease—that the loss of appetite begins in response to some psychologic need and, once established, is perpetuated as a hysterical condition. This conception is borne out by the fact that physical treatment for the anorexia is out of place, the patients being able to recover their appetite with suitable psychologic help alone. A common emotional cause will explain both the anorexia and the amenorrhea often associated with it. But in the chain of events that leads to the amenorrhea the pituitary must be involved, and there is often evidence that the functions of this gland are already subnormal. The deficiency may show itself by small height, delayed onset of puberty, infantile uterus, adolescent obesity and in other ways. The symptoms of nervous anorexia—loss of appetite and weight, amenorrhea, low basal metabolism and alterations in carbohydrate metabolism—are so similar to those of Simmonds' disease as to suggest that in these cases one is really dealing with a "functional" Simmonds' disease—a pituitary "black-out" of psychologic origin. It is possible that only a certain type of body-mind reacts in this particular way, that the infantility which often characterizes the psychologic background may be the counterpart of an actual endocrine infantility.

Fate of Colloidal Thorium Dioxide in Cerebral Arteriography.—Northfield and Russell describe four cases in which, after arteriography with colloidal thorium dioxide, histologic evidence was obtained of retention in the lumen or walls of

the cerebral vessels or in the perivascular macrophages. Such retention appears to be liable to take place in the neighborhood of compressing lesions, such as meningioma, a large hemorrhage or chronic abscess. The aggravation of clinical symptoms that was observed in two of the cases and the retardation of recovery from operation in one may be attributable to this occlusion of vessels by colloidal thorium dioxide. The use of colloidal thorium dioxide is inadvisable unless exact diagnosis is unattainable without it.

Medical Journal of Australia, Sydney

1: 117-156 (Jan. 23) 1937

Further Studies of Pollen Content of Melbourne Air. M. M. Sharwood.—p. 117.

Infestation of Man with *Trichostrongylus Colubriformis* from Sheep. I. C. Ross.—p. 122.

Trichomonas Vaginalis Vaginitis as Cause of Pruritus Vulvae. B. H. Swift.—p. 123.

1: 157-192 (Jan. 30) 1937

Midwifery Since the Time of Ambroise Paré. A. H. Marks.—p. 157.

George Bass, the Surgeon and Explorer. E. Scott.—p. 165.

*Influence of External Temperature on Blood Sedimentation Rate. D. B. Rosenthal.—p. 172.

1: 193-226 (Feb. 6) 1937

Main Varieties of Arterial Diseases. R. Muir.—p. 193.

Hydatid Disease: Survey of Sixty Cases. J. Le M. Kneebone.—p. 201.

Hydatid Disease in Children. H. B. Graham.—p. 206.

1: 227-272 (Feb. 13) 1937

New Complete Range of Splints and Fracture Reducing Apparatus Designed on "Universal" Principle. L. Buchanan.—p. 227.

Influence of Temperature on Blood Sedimentation Rate.—Rosenthal declares that a sedimentation index of say 17 mm., measured on a summer's day, may well be the equivalent of 5 mm. in the same subject on a winter morning; while a "diagonal curve" on a hot day might have the same significance as a "horizontal line" during a cold spell. A standard temperature for the performance of the test is eminently desirable: 68 F. is suggested as a convenient standard. When it is impracticable to perform the test under standard conditions, the practice of noting the room temperature when the readings are quoted should be followed so that due provision for temperature variation may be made. Mathematical correction for temperature variation at present is not practicable. The disparity between the sedimentation index and the cell volume indicates approximately to what extent the former is a measure of the sedimentation velocity, and the recording of the cell volume at the end of each test would be a valuable procedure. By centrifugating the tube, or immersing it in a water bath at about 100 F., the figure for cell volume could be rapidly, if approximately, obtained. The height of the column of cells, that is, of the sediment, quoted as a percentage of the total height of the blood column (which, in Cutler's method, is approximately 5 cm.) is a suitable index for cell volume. A complete statement on the result of a blood sedimentation test would then read somewhat thus: (1) for "slow" blood: 8 mm., 63 F., 55 per cent; (2) for "fast" blood: 28 mm., forty minutes, 63 F., 40 per cent.

Journal of Oriental Med., Dairen, S. Manchuria

26: 19-36 (Feb.) 1937

Adsorption by Various Adsorptive Substances of Specific Precipitable Substance in Blood: Part I. Experiments with Anti-Human Blood Serum Precipitine. Wang Shih-Kong.—p. 19.

Growth of BCG and Tubercle Bacilli on Calmette's Mediums. T. Hashimoto.—p. 21.

Cultivation of Streptobacilli of Ducrey. T. Akiyama.—p. 22.

Hygienic Study of Two Newly Built Residences with Different Types of Outer Wall. E. Ito.—p. 23.

Study of the Hard Palate of the Chinese. S. Ohshima.—p. 24.

Experimental Study of Influence of Sympathectomy on Regeneration of Skin Wounds. S. Hayashi.—p. 26.

Verification of Tubercle Bacilli in the Blood Stream. K. Fukumoto.—p. 27.

The Eggs of Intestinal Parasites Attached to "Tukemono." Y. Morikawa and S. Fukuda.—p. 29.

Statistics on Eye Tuberculosis of the Japanese in Manchuria. H. Isayama.—p. 30.

Perforative Peritonitis Due to Bacterial Dysentery. S. Baba and I. Saito.—p. 31.

Statistical Observations on Appendicitis. S. Baba.—p. 32.

Malignant Hypernephroma with Rebellious Lumbago: Case. Y. Saito.—p. 34.

Study of Anaerobic Bacteria: Part III. Influence of Various Acridine Derivatives on Anaerobic Bacteria. H. Inoue.—p. 35.

Id.: Part IV. Relation Between Pigments and Anaerobic Bacteria. H. Inoue.—p. 36.

Bruxelles-Médical, Brussels

17: 689-725 (March 7) 1937

*Central Renal Abscess with Hematuria. A. Leruitte.—p. 689.
Congenital Stricture of Aortic Isthmus. C. Lian and J. Facquet.—p. 708.

Bazin's Indurated Erythema and Pregnancy. J. Piérard.—p. 712.

Central Renal Abscess.—Leruitte draws attention to a clinical variety of pseudoplastic renal abscess that has not yet been described in urologic literature. It manifests itself by profuse hematurias but by no other clinical signs that would lead one to suspect suppuration of the kidneys. The etiologic factor is the colon bacillus found alone in the urine. Preceding trauma or previous infections seem to be of little plausibility as to etiology. Pathologically, the kidney in which an abscess develops retains its normal macroscopic aspect for a long time. It becomes tumor-like only when the abscess has penetrated to the periphery. It always opens into the pelvis. The abscess is of the miliary type and, situated mainly in the interstitial tissue, it sometimes also includes glomeruli which are either congested or atrophied, and excretory tubules, some of which are dilated and others show cellular obstruction of the lumen. A conglomeration of miliary abscesses is easier to explain than would be a causative infarct, which would produce deeper and wider destructions. The phenomena of congestion are alone capable of causing hematuria, as it is well known that even the slightest ulceration of a malpighian pyramid will make a kidney bleed, owing to a particular vulnerability of the renal vessels. The clinical examination reveals a temperature of about 98.5 to 99 F. and, on palpation, a localized pain in the costolumbar angle. But the main clinical symptom is continuous painless hematuria supplemented by pyelographic observations of functional deficiency and alterations of the renal pelvis. In the three cases under the author's observation there were vermiform clots presenting veritable casts of the ureter, pus and numerous colon bacilli. One pyelogram showed a lesion in the superior extremity of the left calix whose shadow was less dense than that of the pelvis. Another showed the shadow of the inferior calix together with the lacunary shadow separated from the pelvis owing to compression by the abscess. Differential diagnosis must be made from scurvy, leukemia, purpura, hemophilia and medicamentous hematurias in infectious diseases. Renal tuberculosis, hematuric pyelonephritis and infected renal calculi are all attended by cystic phenomena not existing in pseudoplastic central abscesses of the kidney. The best method of treatment is exploratory nephrotomy, which must afford the assurance that all abscesses have been opened. But Marion maintains that there is no reason for haste unless the symptoms are severe, in which case decortication is not sufficient and nephrectomy should be resorted to. Spontaneous cure is possible in mild cases.

Bull. et Mém. de la Soc. des Chirurgiens de Paris

29: 1-56 (Jan. 8) 1937

*Pseudofracture of Acetabulum in Children and Ischium Varum. L. Lamy and J. Vincent.—p. 29.
Acute Osteomyelitis Continuing Despite Three Successive Operations Cured by Phagothérapie. A. Raiga.—p. 42.

Pseudofractures of Acetabulum in Children.—Lamy and Vincent examined a number of children referred to them with alleged fractures of the acetabulum. This diagnosis is often made from roentgenograms falsely interpreted. They are dealing with patients whose cartilages have not yet become ossified and in whom the roentgenograms were taken obliquely with the patient in an anteroposterior and somewhat rotated position. The authors could verify this fact by changing the position of the child on the x-ray table. The new roentgenograms thus obtained no longer show any "lesion." By turning the patient on the other side they could obtain the same picture on the unsuspected side. The three primary centers of ossification of the coxa appear between the second and fourth intra-uterine months. At birth they are separated by three cartilaginous lamellae. But the converging center does not correspond to the geometric center of the acetabulum even in the older child. For this reason the inferior cartilage, which is vertical, is not seen in an anteroposterior roentgenogram. If the ilium is in a normal position with no lateral rotation and no anterior or posterior inflexion, the ilio-ischiatic and the iliopubic shadows

appear superimposed. If the ilium is kept vertical but in left to right rotation of about 30 degrees, the posterior part of the cartilage appears below the ilium. If the ilium is somewhat tilted backward but without lateral rotation, the ischium is vertical and appears shortened. If the latter shortening becomes more accentuated, it assumes an ischiopubic direction downward and inward. It thus shows clearly the upper border of the ischium by degaging on the inside the ilio-ischiatic cartilage. Only recently the authors noticed a similar erroneous report in an American journal in which the roentgenogram showed the ischium of the right side displaced downward. The American author even believes that he has corrected the "displacement" by reducing the flexion and abducting the thigh. But the fact remains that the roentgenogram taken several months later shows nothing but a more correct position of the patient on the plate. In the meantime the child also grew and the acetabulum became more ossified. The authors conclude that they are never satisfied with small films. Many roentgenograms may often be necessary and a few modifications of the pelvic posture in order to avoid believing in a fracture with impaction or in a dislocation of the ischial epiphysis. There will also be no reason to speak of ischium varum when there is merely an improper posture assumed by the patient.

Presse Médicale, Paris

45: 313-328 (Feb. 27), 1937

- Three Pathogenic Forms of Eczema: Therapeutic Deductions. A. Tzanck and J. Monchamont.—p. 313.
 *Dry Trapeziometacarpal Osteo-Arthritis: Rhizarthrosis of the Thumb. J. Forestier.—p. 315.
 Endoscopy and Pleurolysis: Advice to Beginners. P. Weiller.—p. 317.

Dry Trapeziometacarpal Osteo-Arthritis.—After studying about 4,000 cases of rheumatism of the hands, Forestier noticed a degenerative form of arthritis which occurred frequently in the carpometacarpal joint of the thumb. Its symptoms of pain and functional impairment are due to an arthritis in which both bones are involved. Among fifty-seven patients there were fourteen men and forty-three women. The preponderance of women above the age of 50 may have its cause in changes due to the menopause. The onset is marked by pain, which may be spontaneous along the radial aspect of the thumb or caused by vigorous movements or grasping efforts. In rare cases it eventuates in rigidity and functional impotence of the thumb. On examination the metacarpal of the thumb was frequently found fixed parallel with the second metacarpal, from which position abduction was difficult. Often the thenar eminence was so atrophied that the deformed and enlarged first carpometacarpal articulation was visibly protruding. The first stage of the arthritis is characterized by a moderate hypertrophy and slight friction sounds on passive motion. The second stage shows pronounced bony hypertrophy, often attended by swelling and limited abduction. The third stage is marked by considerable bony hypertrophy and eburnation and almost complete ankylosis, as well as external and forward subluxation of the proximal end of the first metacarpal. In the majority of cases the disability becomes bilateral within three years. Physiologically, the hypertrophic changes of the proximal end of the metacarpal and the widening of the trapezium may be due to the presence of osteophytes and to thickenings around the epiphysis, while the capsule remains normal and the synovial membrane shows only slight fibrinous changes. Roentgenologically the articular interspace diminishes until it entirely disappears. The bony texture appears granular and the reticular outlines are quite modified by calcified deposits. The diagnosis is arrived at through routine examination of the hand, and the disorder must be differentiated from tendovaginitis and from traumatic injuries. This osteo-arthritis may begin slowly and be latent for some years, but it has generally a favorable prognosis, except for the esthetic aspect. The treatment is the same as in other arthroses: iodine, sulfur or glandular therapy. Important is the immobilization of the joint and its protection against cold. Various forms of physical therapy were tried with good results. In one painful case the author performed a drilling operation through the trapezium and the base of the metacarpal after a small incision at the base of the thumb. The holes are about 2 mm. wide, made into the bones at right angles without injury to the capsule. The postoperative results are favorable.

Giornale di Tisiologia, Naples

11: 1-22 (Jan. 31) 1937

- *Abdominal Syndromes in Pleurisy. P. Guglielmetti.—p. 1.
 *Francke's Striae in Pulmonary Tuberculosis. P. Alimenti.—p. 14.

Abdominal Syndromes in Pleurisy.—Guglielmetti says that the development of abdominal and gastric symptoms in pleurisy is a frequent occurrence, especially in patients having a pneumothorax. The clinical symptoms depend on the location and phase, acute or attenuated, of pleurisy. Acute right pleurisy is complicated by an acute abdominal syndrome with the symptoms of acute conditions of the abdomen or of acute appendicitis. There are intense abdominal pain, diffuse or located at the appendicular region, and muscular rigidity. The abdominal symptoms are not related to the amount of pleural fluid. The former may appear in the absence of the latter. Simultaneously with the abdominal symptoms, gastric disturbances develop. Once pleurisy and its consequent symptoms are established, the abdominal symptoms do not improve by removal of pleural fluid but follow a favorable evolution on regression of the general toxic phenomena. Disturbances of the liver and of the gastric motility are rare. In the nonacute periods of right pleurisy as well as in acute left pleurisy the gastric symptoms predominate over the abdominal ones. They consist in anorexia, nausea, a sensation of fullness after meals, digestive disorders and vomiting. Their intensity and evolution depend on the amount of pleural fluid and improve after removal of the fluid. Abdominal pain in left pleurisy is moderate. It is located at the left hypochondrium. According to the author the most important causal factors of the abdominal and gastric symptoms complicating pleurisy are a propagation of the inflammation from the pleura to the phrenic and the thoracic sympathetic nerves and a rupture of the relations of the organs at the abdominal cavity and at the thorax, due to mechanical disorders of the diaphragm. It is possible that the nervous and diaphragmatic conditions created by pneumothorax make the occurrence of causal factors more frequent in the course of pleurisy in patients having a pneumothorax than in normal persons. In the group of thirty-seven cases reported by the author, the abdominal and gastric symptoms were a complication of right, left or bilateral pleurisy in patients having a pneumothorax.

Francke's Striae in Pulmonary Tuberculosis.—Alimenti calls attention to the frequency, significance and importance of Francke's striae in pulmonary tuberculosis. Francke's striae are small cutaneous venous ectasias of red wine color which generally appear near the seventh cervical vertebra. They may be unilateral or bilateral and sometimes form a small Medusa head. The intensity of the color depends on the duration of tuberculosis. According to the author, Francke's striae are a viscerocutaneous reflex which originates in a chronic stimulation from the apex of the lung to the skin. Because of their frequency in pulmonary tuberculosis (45 per cent) they are of diagnostic value, especially in the forms which evolve with few symptoms or no symptoms at all. Francke's striae are also of prognostic value. Their presence shows the existence of fibrocaceous tuberculosis of long duration at the apex, a tendency of the disease to evolve with frequent recurrences, rather than going through a process of stabilization of the disease, and the presence of pleural adhesions.

Minerva Medica, Turin

1: 267-298 (March 18) 1937

- Relation Between Reticulocytosis and Regeneration of Erythrocytes. L. Crosetti and G. Bajardi.—p. 273.
 *Hemoglobinuria from Malaria: Treatment with Cevitamic Acid. G. Castrovilli.—p. 279.

Cevitamic Acid in Treatment of Malarial Hemoglobinuria.—Castrovilli reports satisfactory results from the daily administration of a hypodermic injection of 0.1 Gm. of cevitamic acid in a case of nephrohemolytic hemoglobinuria in benign tertian malaria, without jaundice and hemoglobinemia. The injection was repeated a second time. During administration of the treatment and for some time after it was discontinued, the patient was given liberal amounts of lemon juice. Hemoglobinuria completely and permanently disappeared after the first vitamin injection. The platelets rose from 150,000 to 200,000. Malaria was controlled by atabrine and plasmochin.

According to the author, the administration of cevitic acid prepares the body for a general favorable reaction to antimalarial treatment. In the case reported the administration of 0.6 Gm. of quinine and the exposure of the patient's legs to a cold ambient (Ehrlich's test) did not produce hemoglobinuria after recovery of the patient by treatment with cevitic acid took place.

Pathologica, Genoa

29: 45-88 (Feb. 15) 1937

Strain of "Salmonella" as Agent of Acute Suppurative Nephritis in Small Epidemics. R. Bertoli.—p. 45.

Behavior of Calcium Potassium and Cholesterol in Blood After Total Colon Resection: Experiments. M. Agrifoglio and G. Giannoni.—p. 48.

*Creatinuria in Relation to Endocrine (Sexual) Dysfunction. C. Seghini.—p. 53.

Sarcoma of Round Ligament of Liver: Case. P. Aragona.—p. 58.

Presence of Epinephrine in Prostate and Prostatic Extracts. G. Oneto.—p. 61.

Creatinuria in Relation to Sexual Dysfunction.—Seghini states that alterations of functions (especially sex) cause disturbances of the creatine metabolism, as shown by the appearance of spontaneous creatinuria and elimination of administered creatine. In his experiments on normal rabbits he found that castration induced creatinuria, which disappeared spontaneously a month later or after the administration of testicular extract. When the administration of the testicular substance was discontinued, the creatinuria reappeared.

Revista Argentina de Cardiología, Buenos Aires

3: 325-408 (Nov.-Dec.) 1936

*Asynchronism of Ventricular Contraction in Bundle Branch Block. A. Battro, E. Braun-Menendez and O. Orias.—p. 325.

Interauricular Communication and Pericardial Symphysis: Case. P. Cossio and I. Berconsky.—p. 360.

Myocarditis of Productive Type of Probable Syphilitic Origin: Case. T. Castellano, Dacia Deza Cenget and R. Lascano.—p. 367.

Ventricular Contraction in Bundle Branch Block.—Battro and his collaborators state that by obtaining simultaneous graphic records of the venous pulse and the heart apex impulse and of the central arterial pulse and the heart sounds, one is able to ascertain whether the ventricles contract simultaneously or asynchronously. The authors used the procedure in twenty cases in which the electrocardiograms showed right bundle branch block. The electrocardiograms were of the classic type (Lewis, Mahaim and Rothberger) in seventeen cases and of Wilson and his collaborators' type in three. In fifteen cases of the classic group the graphic records showed asynchronism with premature contraction of the right ventricle over that of the left, which was an indication of left bundle branch block. In two cases in the group the contraction of the ventricles was synchronous. In one case in the group of patients having electrocardiograms of Wilson's type, the contraction of the left ventricle took place before that of the right and in two cases in the same group there was no asynchronism. The authors conclude that the electrocardiogram alone is too unreliable to determine the presence of ventricular asynchronism for the diagnosis of complete bundle branch block. By graphically recording the mechanical phenomena of the heart action, the presence and intensity of ventricular asynchronism as well as the location of the lesion on either branch can be ascertained and a reliable diagnosis made.

Archiv für Verdauungs-Krankheiten, Berlin

61: 1-112 (Feb.) 1937. Partial Index

*Combined Tolerance Test (Water, Sodium Chloride, Urea) as Functional Test of Nephritic Disorders. G. Weitzmann.—p. 1.

Etiology of Cardiotonic Dilatation of Esophagus (So-Called Cardiospasm). Elisabeth Opitz.—p. 21.

Embolio Focal Gastritis. K. Lühr.—p. 33.

*Can Ptosis of Viscera, Particularly of Stomach, Be Compensated by Abdominal Support? W. Kaufmann.—p. 39.

Water-Sodium Chloride-Nitrogen-Tolerance Test For Detection of Disturbances in Renal Elimination in Obese and Emaciated Persons.

Hildegard Bretschneider.—p. 49.

Water-Sodium Chloride-Urea Tolerance Test.—Weitzmann says that the combination tolerance test with water, sodium chloride and urea, the technic of which he described in an earlier report, is helpful in all cases in which the elimina-

tion of water, salt and urea is impaired. In this paper he discusses different groups of such disturbances. He shows that the acute nephritides, in which permanent anatomic changes are still absent, must be differentiated from the so-called residual conditions, from the chronic nephritides and from contracted kidney. In acute nephritis the combination tolerance test does not permit definite conclusions with regard to the type and severity of the disorder or the therapeutic-dietetic measures. The residual conditions, that is, those in which a cure with defect must be assumed, nearly all show an abnormal behavior in the tolerance test; nevertheless, the elimination of water, sodium chloride and urea is usually adequate. In the chronic nephritides, however, there is usually a retention of water, sodium chloride or nitrogen, or of several of these substances. The combination tolerance test discloses not only the type of the functional disturbance but also the incapacity to compensate for it. The impairment of the elimination involves particularly the sodium chloride, for, if from 12 to 14 Gm. is taken in, less than 6 Gm. is eliminated. The nitrogen elimination is likewise impaired: if from 12 to 15 Gm. is taken in, the elimination is rarely below 8 Gm. The water elimination varies greatly in different cases of chronic nephritis. In contracted kidney likewise the water elimination varies considerably. In severe cases with chronic uremia, polyuria may exist. However, if a cardiovascular insufficiency develops, the diuresis usually decreases. In this terminal stage of contracted kidney the specific gravity of the urine remains constantly the same. After describing and discussing typical cases, the author reaches the conclusion that the combined water-sodium chloride-urea tolerance test is a valuable functional test during all the stages of hemorrhagic nephritis. In comparison to the plain water tolerance test, the combination tolerance test gives more information about the complicated processes of renal elimination, their regulatory mechanisms and their compensatory capacities. The evaluation of the results of the tolerance test permits a more exact dietetic treatment.

Treatment of Visceral Ptosis by Abdominal Support.—Kaufmann points out that Glénard first applied the term visceral ptosis and suggested abdominal supports for its correction. These bandages, which have pads on the inside, lift up the prolapsed organ. The author thinks that they have not been used as much as they should. He gives his attention chiefly to ptosis of the stomach, pointing out that, in view of the hydrostatic pressure balance in the abdominal cavity, it is sufficient to lift the prolapsed stomach, as the other abdominal organs are lifted with it. In case of an obese but dilated abdomen, the prolapsed stomach and the entire abdominal contents can be lifted and drawn backward toward the vertebral column by a specially designed abdominal support. If visceral ptosis exists in thin persons, the support must have a special pad on the inside. After discussing and illustrating the design of the abdominal supports, the author cites histories of patients in whom he found the abdominal support helpful, such as cases of gastric dilatation in pyloric stenosis, a case of severe kyphoscoliosis, a case of gastric dilatation after duodenal ulcer, and a case of ptosis of the stomach after gastro-enterostomy.

Klinische Wochenschrift, Berlin

16: 289-328 (Feb. 27) 1937. Partial Index

*Forms of Diphtheria Bacillus and Chemical Aspects of Diphtheria. H. Otto and G. Mittag.—p. 294.

Hypertonic-Atonic Dysphagia in Nurslings with Habitual Vomiting. W. Catel.—p. 296.

Chronic Poisoning with Soporifics. H. Oettel and A. Krautwald.—p. 299.

Antinarcotic Action of Follicle and Testis Hormones. T. P. Störtebecker.—p. 302.

Etiology, Prognosis and Therapy of Atrioventricular Block. E. Lauf.—p. 303.

Continuous Resistance to Therapy of a Pallida Strain in Animal Experiment. M. A. Schoch.—p. 306.

Comparative Determination of Cevitic Acid Content of Various Animal Organs. A. A. Policard and M. Ferrand.—p. 308.

Clinical Aspects of Diphtheria.—Otto and Mittag report their observations in seventy-three cases of diphtheria. They found that all three types (mitis, intermedius and gravis) may appear in the course of one epidemic. Healthy bacillus carriers may harbor not only the mitis type but also the intermedius

and the gravis types. In two cases the authors observed first an intermedius type and then a mitis type. In siblings they observed the same as well as different types of diphtheria bacilli. Complications may develop in the presence of type mitis, intermedius and gravis. It was observed that some of the severest complications developed in patients with the mitis type of diphtheria bacillus. The percentage of complications was also highest among the patients with the mitis form. The mitis type predominated in the material analyzed by these authors, but they say that other types have been found to predominate in other regions. However, since it cannot be said that the gravis type of diphtheria bacillus causes severe forms of diphtheria and the mitis type mild forms, the authors suggest that the types gravis, mitis and intermedius be designated as types I, II and III, respectively, so as to avoid erroneous ideas regarding the clinical manifestations of the diphtheria caused by the various types of bacillus.

Medizinische Welt, Berlin

11: 267-300 (Feb. 27) 1937. Partial Index

- *Value of Encephalogram in Differential Diagnosis Between Hereditary and Symptomatic Forms of Epilepsy. F. Laubenthal.—p. 267.
- Lymphogranulomatosis: Clinical Diagnosis on Basis of Blood Status, Puncture Method, and so on, and Differential Diagnosis. V. Schilling.—p. 272.
- Relapse Following Treatment of Carcinoma of Cervix Uteri. K. Tietze.—p. 276.
- Cure of Postencephalitic Parkinsonism by Bulgarian Folk Remedy. P. Nikoloff.—p. 279.
- Hypophysis and Stomach. K. Herman.—p. 281.
- Practitioner's Contribution to Problem of Appendicitis. S. König.—p. 283.

Encephalography in Differential Diagnosis of Epilepsy.

—Laubenthal shows that encephalography has acquired considerable importance in the differentiation between the hereditary and symptomatic forms of epilepsy. His observations in several hundred cases proved that, with the exception of temporary discomfort and disturbances, encephalography has no undesirable effects. In the cases described in this report he applied the diagnosis of hereditary epilepsy only to those cases in which epilepsy was present among the blood relations and in which there was no record of an exogenic lesion. In summarizing his encephalographic observations in the cases of hereditary epilepsy, he says that a large number show encephalographic changes. There are unilateral or bilateral enlargement of the ventricles, dilatation, particularly of the third ventricle, and occasionally also a lack of ventricular filling on one or both sides. The subarachnoidal filling may be increased, irregular or spotted. However, the author failed to observe in cases of hereditary epilepsy extremely severe (hydrocephalic) degrees of ventricular dilatation, also extensions, displacements and sinusities of the ventricles. He thinks that circumscribed changes in the subarachnoidal filling are rather indicative of a local process, particularly in doubtful cases. He emphasizes that encephalography should always be combined with exact anamnestic studies and careful neurologic examinations, for, although the encephalogram may be the deciding or corroborating factor in the differential diagnosis, it may also fail to clarify it.

Wiener Archiv für innere Medizin, Vienna

30: 1-126 (Feb. 28) 1937. Partial Index

- Lymphatic Leukemias with Aspects of Thrombopenic Purpura, Hemolytic or Aplastic Anemia and Agranulocytosis. R. Klima and H. Seyfried.—p. 1.
- Action of Narcotics That Influence Diencephalic Centers in Exophthalmic Goiter. E. Fenz.—p. 15.
- Mineral Metabolism in Case of Addison's Disease. H. Kaunitz.—p. 57.
- *Wheal Resorption Time During Volhard's Water Test. C. V. Medvei and P. Lehdorff.—p. 65.
- Bronchial Carcinoma at Site of Former Trauma. W. Pilgerstorfer.—p. 71.
- Pathogenesis and Treatment of Idiopathic Spontaneous Pneumothorax. A. Sattler.—p. 77.

Wheal Resorption Time During Volhard's Water Test.

—Medvei and Lehdorff point out that the intake of large amounts of fluid, such as in the Volhard water test, causes a change in the fluid exchange between blood and tissue and vice versa. Immediately after the water has been taken there is a retardation of the passage into the blood of subcutaneously injected uranin; but one hour later the resorption time is

again as before the administration and two or three hours later it is frequently somewhat accelerated. In pathologic processes such as nephritis, carcinoma and icterus, these conditions are different and thus conclusions can be drawn about the condition of the "prekidney." The authors decided to determine whether the more simple wheal test (McClure and Aldrich) together with the water test might not be helpful in the functional examination of kidney and "prekidney." They made the wheal test in connection with the water test in a number of patients and in control cases. They found that there were no significant differences between the resorption time of the wheal (made according to the method of McClure and Aldrich with solution of sodium chloride) before and after the intake of 1,500 cc. of fluid. Thus it is impossible to substitute this simpler test for the more complicated uranin resorption and Volhard test. The authors point out further that their results contradict also Pugliese's observation that the wheal resorption time is prolonged during the water tolerance test and shortened during thirst.

Wiener medizinische Wochenschrift, Vienna

87: 253-288 (March 6) 1937. Partial Index

- *Symptom of Body Rotation in Disease of Frontal Brain. J. Gerstmann.—p. 255.
- *Treatment of Neurologic Complications of Pernicious Anemia. K. Hitzzenberger.—p. 257.
- Question of Hereditary Factor in Nervous Disorders, Particularly in Multiple Sclerosis. O. Marburg.—p. 260.
- Action Mechanism of Malarotherapy in Changes of Hematomeningeal Barriers. D. Paulian.—p. 264.
- Estimation of Drug Addicts. A. Pilcz.—p. 267.
- Significance of Past Lethargic Encephalitis for Aspects of Diseases of Different Origins. E. Stengel.—p. 283.
- Bacillosis of Blood and of Cerebrospinal Fluid. R. Weeber.—p. 285.

Body Rotation in Disease of Frontal Brain.—Gerstmann shows that spontaneous rotation movements occur not only in disorders of the cerebellum and of the middle peduncles of the cerebellum but also in persons with lesions of the frontal brain. He observed that the latter patients exhibit the spontaneous rotation only when in the erect position. The movements are not so much rotations around the patient's own axis but rather tend to form circles of various radii. The rotation movements appear especially when the patient stands with the feet close together and they become intensified when the eyes are closed. It is also noteworthy that they are not accompanied by vertigo or by changes in the position of the eyes. Passive or active turning of the head influences the symptom in that movement of the head toward the side of the affected frontal brain resulting in an intensification of the rotations in this direction, whereas movement of the head toward the opposite side either has no effect on the rotation or intensifies it in the direction homolateral to the lesion. The author observed further that the symptom of rotation in lesions of the frontal brain is accompanied by disturbances in the equilibrium; that is, by a tendency to fall. However, it appears that the falling movements and the rotations tend in opposite directions. Whereas the direction of the fall is backward or contralateral to the lesion, the rotation is in the homolateral direction. To be sure, this difference in directions is noticeable only as long as the brain lesion is limited to one side. As soon as the other side becomes involved (growth of tumor) this symptom becomes irregular and confused. After pointing out that the combination of rotation and disturbed equilibrium has been corroborated in animal experiments, the author concludes that the rotation movements, although elicitable by lesions in various parts of the central nervous system, nevertheless have aspects that are characteristic for frontal lesions. In case of lesions of the frontal brain, the rotation movements appear only if the patient is in the erect position, whereas in case of cerebellar lesions they are present also when the patient is sitting or lying down.

Neurologic Complications of Pernicious Anemia.—Hitzzenberger says that, if a funicular myelitis exists in pernicious anemia, the most potent preparations should be used. Whereas in pernicious anemia that is not complicated by funicular myelitis an erythrocyte count of about 4,000,000 and a hemoglobin content of 80 per cent may be regarded as adequate, in patients

with funicular myelitis this is not sufficient. In the latter patients, efforts should be made to bring the erythrocyte count up to 5,000,000 and the hemoglobin content to 90 or 95 per cent and even after that the injections should be continued. Depending on the severity of the case, 2 cc. of a potent preparation should be injected daily or every second day, for a period of from four to five months. Thus it is possible to influence even the apparently hopeless cases. There is no danger of a polycythemia even if the normal values are exceeded. The substances that are effective against the nervous symptoms apparently are present in such small quantities that large amounts of liver extract must be administered. There are factors which make it probable that funicular myelitis is an avitaminosis. However, there are only few reports about the therapeutic efficacy of vitamin B when given alone. Stomach preparations are effective against funicular myelitis and should be tried. In especially severe cases they should be given in combination with liver extract.

Polska Gazeta Lekarska, Lwów

16: 233-250 (March 28) 1937

Electrocardiographic Researches in Angina Pectoris from Effort, with Especial Attention to Fourth and Fifth Derivation. M. Burak.—p. 233.

Simple Apparatus for Receiving, Preserving and Making Transfusion of Conserved Blood. J. Aleksandrowicz.—p. 235.

*Probation Therapy in Typhoid with Neoarsphenamine and Sodium Dehydrocholate. R. Wygowski.—p. 236.

New Ways of Chemotherapy in Erysipelas. J. Gotlib.—p. 240.

Typhoid Therapy with Neoarsphenamine and Sodium Dehydrocholate.—Wygowski says that there is no specific remedy for typhoid. He divides typhoid therapy into therapy to increase the resistance of the organism, bactericidal therapy, symptomatic therapy and physical therapy. He treated fifty patients ranging in age from 15 to 45 years, forty male and ten female, who usually were admitted to the hospital from one to one and a half weeks after the beginning of their sickness. All the cases were severe and the treatment was administered when there was no contraindication, such as liver, kidney and heart diseases. He used Lucherini and Liuzzo's method of intravenous injection of neoarsphenamine and sodium dehydrocholate. He obtained the following results: Ninety-four per cent of the patients were favorably influenced, showing general improvement and quicker subsidence of symptoms. The duration of the disease was shortened to thirty-two days, while it lasted thirty-nine days in the controls. Complications, such as pneumonia, inflammation of the middle ear and hemorrhage, were reduced to 2 per cent. There were no deaths, while the controls showed a mortality of 6.8 per cent. After recovery no Eberth's bacilli were found in three successive examinations of urine and feces, while there were 12 per cent of typhoid carriers among the controls. After the temperature became normal the blood of the patients treated with neoarsphenamine and sodium dehydrocholate was found to be practically normal. In only one case have symptoms of irritation of the brain cortex been observed, but they subsided spontaneously without leaving after-effects.

Vrachebnoe Delo, Kharkov

19: 1015-1146 (No. 12) 1936

Specific Character of Reactive Phenomena in Early Congenital Syphilis. L. A. Sobolev.—p. 1015.

Comparative Value of Retroplacental and Umbilical Blood in Diagnosis of Syphilis. A. M. Petrov, M. K. Klimenko and T. P. Shchokotova.—p. 1023.

Method of Treatment of Primary Forms of Syphilis. B. J. Kaplun and I. M. Orman.—p. 1031.

*Activation of Specific Treatment of Syphilis by Subcutaneous Insufflation of Oxygen. M. A. Rosental, A. D. Bogodarov, M. M. Plotkina and A. M. Khaletzkaya.—p. 1041.

Effect of Mud Baths on Rheumatic Diseases. A. P. Korchov and B. M. Rabinkaya.—p. 1051.

Peculiarities of Clinical Course of Primary Cancer of Lung. E. B. Kremerman and T. G. Segal.—p. 1055.

Treatment of Syphilis and Subcutaneous Insufflation of Oxygen.—Rosental and his collaborators consider the fact established that oxygen, when introduced under the skin, will be utilized by the organism and that it will activate the vital processes, neutralize toxic metabolic products and cause their

more rapid elimination. Rosental conceived the idea that by increasing the oxygen content of the tissues of the syphilitic patient he would create unfavorable biologic conditions for the anaerobic spirochetes. Voegtlin and Smith assert that neoarsphenamine solutions increase their parasitotropic effect when acted on by oxygen, but that they at the same time become more toxic to the organism, and they as well as Stühmer and Bering maintain that neoarsphenamine when injected becomes effective after first undergoing oxidation. The authors administered to rabbits infected with syphilis and exhibiting hard chancres half the minimal sterilizing dose of neoarsphenamine, namely, 0.007 cc. per kilogram of body weight, while at the same time introducing subcutaneously from 300 to 500 cc. of oxygen. They were able to demonstrate much more rapid disappearance of the spirochetes than in the control animals, which were given the same dose of neoarsphenamine but not the oxygen. The authors treated 140 patients having primary syphilis with the combined neoarsphenamine, bismuth and oxygen treatment. They have selected patients with pronounced clinical symptoms, large chancres and marked adenopathy. Oxygen was administered from forty to sixty minutes before or after each injection of neoarsphenamine, an average of from twenty to twenty-five oxygen insufflations being given in one course. The time necessary for the complete disappearance of the spirochetes was much shorter than in the controls. The effect on the blood picture and the weight of the patients was a favorable one. All the patients remained seronegative after one course of treatment. The authors feel that the results obtained were superior to those obtained with the old method and that insufflation of oxygen activates the chemotherapeutic properties of neoarsphenamine.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81: 989-1116 (March 6) 1937. Partial Index

Bleeding at Onset of Delivery with Death of Child (Velamentous Placenta). J. L. H. Specken.—p. 998.

"Block Formation" (Bony Fusion of Vertebrae) in Tuberculous Spondylitis. R. J. Harrenstein and G. J. Huët.—p. 1002.

*Dangers of Arteriography. E. Verschuyl.—p. 1007.

*Asthmatic Constitution and Therapy of Bronchial Asthma. A. A. Van der Kroon.—p. 1013.

Dangers of Arteriography.—Verschuyl says that a review of the literature reveals that arteriography may result in various complications. He himself describes two cases. The first patient was a man, aged 70, who was hospitalized on account of an acute attack of severe pain in the right leg, which was pale and cold. The anamnesis revealed that he had had mild attacks of pain in the leg for a number of years. It was suggested that the arterial blood stream had become obstructed as the result of spasm or of embolus. Arteriography was resorted to and it revealed the site of obstruction, but not whether the cause was spasm or embolism. To be sure, the removal of an embolus proved unnecessary, because shortly after the injection of the arteriographic contrast medium, color returned into the leg, the patient could move it again and it felt warm. Nevertheless, the patient died suddenly. The necropsy revealed an extremely large retroperitoneal hematoma and the author thinks that it was the direct result of the puncture of the aorta, which was made for the arteriography. The second patient was a woman, aged 28, who had pain, cyanosis and swelling of the right arm. In order to perform an arteriography, contrast medium was injected into the subclavian artery. Immediately after this injection the patient had a typical epileptic attack, but she finally recovered. The author points out that the literature likewise reports cases of epileptic attacks in the course of angiography. He thinks that, in view of the dangers which are involved, arteriography should be resorted to only as a last resort.

The Asthmatic Constitution.—Van der Kroon shows that a number of factors enter into the development of asthma. The main factor is of a constitutional nature and is designated as asthmatic basis. Under this heading he directs attention to metabolic factors, the sympathetic nervous system, the endocrine equilibrium, dietetic factors, the mineral and water exchanges and so on. Further he discusses the predisposition of the organ, pointing out that the action of nervous stimuli

is dependent on the condition of the organ that responds to them. As regards bronchial asthma, the author stresses the importance of bronchitis. In discussing the treatment of bronchial asthma, he shows how to influence the various factors that play a part in the development of the disorder. He mentions the use of endocrine preparations, dietetic measures and psychotherapeutic treatment. In order to counteract the bronchitis, all disorders of the respiratory tract must be treated.

81:1117-1216 (March 13) 1937. Partial Index

Urinary Incontinence in Case of Incarceration of Pregnant Uterus in Small Pelvis. R. Van Akkeren.—p. 1118.

Atelectasis of Upper Lobe in Children. M. De Bruin.—p. 1124.

*Lead Poisoning in Cigar Makers. G. H. W. Jordans, A. A. S. Zijlmans and J. J. C. Broos.—p. 1129.

*Triboulet's Reaction in Localization of Hemorrhages of Digestive Tract. A. Van Meeteren.—p. 1139.

Lead Poisoning in Cigar Makers.—Jordans and his associates observed a large number of cases of lead poisoning among cigar makers. At first they believed that the zinc plate on which the cigar maker cuts the tobacco might be responsible for the lead intoxication, but later it was found that in the region in which most of these cases of lead poisoning occurred the drinking water contained considerable amounts of lead. However, it could not be proved that the lead poisoning of the cigar workers was entirely a drinking-water poisoning. There were indications that occupational factors did play a part. The authors are convinced that the zinc plate with its lead content and the tobacco itself were partly responsible for the lead intoxication. They advise that the zinc plate be eliminated from the process of cigar making.

Triboulet's Reaction.—Van Meeteren points out that Triboulet's reaction is not specific for tuberculosis of the intestine. He reports his experiences with the test on patients with various intestinal disorders. He found that bleeding processes of the intestinal tract can be differentiated in two groups on the basis of Triboulet's test. The first group includes all processes of the upper part of the intestinal tract, that is, the intestinal tract up to and including the duodenum; the second group includes all those in the lower part of the intestinal tract. In the first group the blood that is present in the feces is not detected by Triboulet's test, that is, the test is negative; in the second group it is positive. Thus Triboulet's reaction has differential diagnostic value in the localization of hemorrhages of the digestive tract.

Acta Dermato-Venereologica, Stockholm

18:1-129 (Feb.) 1937

*New Classification of Syphilitic Changes. J. Almkvist.—p. 1.

*Occurrence of Heterogenic Antibodies (F-Antibodies) in Blood of Patients with Skin and Venereal Diseases. H. Haxthausen.—p. 57.

Syphilitic (Gummatous) Meningitis with Changes in Pituitary Gland (Dystrophia Adiposogenitalis): Case. E. Hval.—p. 64.

Investigations on Bactericidal Characteristics of Several Dermatologic Medicines. T. E. Olin.—p. 81.

Cellular Sensitivity to Tuberculin in Lymphogranulomatosis Benigna. Schumann as Exhibited in Examinations of Isolated Slices of Skin. J. Schumann and G. Boström.—p. 90.

Cutaneous Type of Periarthritis Nodosa. W. L. L. Carol and J. R. Prakken.—p. 102.

Interesting Case of Blennorrhagic Keratoderma. C. A. Falk.—p. 119.

New Classification of Syphilitic Changes.—Almkvist reviews the early literature of syphilis and points out that Ricord in 1858 arrived at the differentiation of three distinct periods in the development of syphilis. Almkvist says that his own histologic investigations, which have extended over more than twenty years, have led him to doubt Ricord's idea and to arrive at an entirely different conclusion; namely, that the histopathologic changes in syphilis actually represent not different periods, but a uniform state throughout the entire progress of syphilis, modified only by accidental factors. On the basis of his investigations he formulates three general laws for the evolution of the syphilitic lesions: 1. The spirochetes produce in each type of tissue a histologic reaction that is characteristic for the tissue in question but differs from the reaction in other tissues. 2. The changes induced by the syphilitic process in each kind of tissue are of a uniform nature through the entire course of the disease. They are the same in new cases and in

those of long standing. 3. The different clinical manifestations of the syphilitic lesions are the result of such factors as the varying location of the spirochetes, differences in the degree of immunity, toxin-antitoxin reactions and nutritional disturbances. Nevertheless, on the basis of the pathologic conditions the author suggests four instead of Ricord's three periods; namely, (1) initial or humoral syphilis, (2) hematogenous syphilis, (3) serpiginous syphilis and (4) old degenerative syphilis.

Occurrence of Heterogenic Antibodies.—Haxthausen says that heterogenic antibodies are present in most human serums and that recent investigations have shown that F-antigens are extremely prevalent in nature. Several investigators proved that the amount of F-antibodies varies greatly in human serums. Age seems to exert a certain influence, for new-born babies do not possess antibodies at all, but during the first year of life the amount increases and reaches its maximum between the fifth and tenth years. There have been different explanations of this spontaneous appearance of F-antibodies in human serum. One of these considers various infections as the source. In infectious mononucleosis the serum contains especially large quantities of F-agglutinin. F-hemolysins have been observed to increase during pneumonia. High hemolysin and agglutinin titers have been demonstrated in tonsillitis, diphtheria and scarlet fever. This theory of the infectious origin is made even more probable by the fact that F-antigens have been observed in a large number of pathogenic micro-organisms. Nevertheless, infection is doubtless only one of several sources of F-antibody production. Lifeless antigens, such as horse serum, have been proved to have this effect. In order to throw light on the occurrence of F-antibodies in various diseases, the author undertook a series of hemolysin and agglutinin determinations on patients suffering from different skin and venereal diseases, and on a number of control subjects. The tables of the results of the tests indicate that such marked divergence from the normal as exists in mononucleosis was not to be found in any of the different diseases examined. In tuberculosis, syphilis and erythema multiforme the figures are more like those of the controls. In other conditions, however, there is an increase in the hemolysin titer. This was most noticeable in pityriasis rosea, so that it seems possible that in this condition there is an increase of F-hemolysin in the serum. In gonorrhea, eczema, psoriasis and alopecia areata the hemolysin exponents appear to be a little higher than normal. In alopecia areata the agglutination value too seems to be greater than normal. Nevertheless, low titers were observed in several typical cases of the aforementioned disorders. Conditions such as favus, trichophytia and epidermophytia were represented only by one or a few cases, but all these cases showed a high hemolysin titer. One case of Boeck's sarcoid, one case of erysiploid and three cases of inguinal lymphogranuloma showed high hemolysin exponents. Among the eczemas in children there is a distinct difference between the pityriasis simplex group and the allergic group. In the first group the titer is only slightly above the normal, but in the allergic eczemas the hemolysin exponents are extremely high.

Ugeskrift for Læger, Copenhagen

99:213-240 (Feb. 25) 1937

Some Considerations in Understanding and Judgment of "Unspecific" Seroreactions for Syphilis. A. Kissmeyer.—p. 213.

Treatment of Hemorrhagic Nephritis with Diet Rich in Protein. A. Næraa.—p. 216.

*Keratoconjunctivitis Sicca. E. and T. Dalsgaard-Nielsen.—p. 219.

Keratoconjunctivitis Sicca.—The Dalsgaard-Nielsens report seven cases of this relatively rare disease, considered by them as a distinct entity. They state that Sjögren found nineteen cases, all in women, from a polyclinic material of 36,000. In the main the disease occurs in women past the age of 40 and near or during the climacterium; two thirds of the patients have a history of rheumatic fever or signs of changes in the joints, and the general condition is usually inferior for the age. They believe that in cases of keratosis sicca there is a chronic infection which affects the vegetative nervous system, and a resulting hypofunction of certain glands constitutes the basis for the development of the disease.

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THE INCIDENCE OF TUBERCULOUS INFECTION IN AMERICAN COLLEGE STUDENTS

DETERMINATION BY STANDARDIZED TUBERCULIN
(PURIFIED PROTEIN DERIVATIVE) ON 18,744
COLLEGE ENTRANTS IN 1935-1936

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Within recent years great progress has been made in the control of tuberculosis in American college students. Five years ago only a few universities were organized for locating early cases of the disease in the student body. Today throughout the country college health services are better developed, either through well organized full time departments or through part time arrangement with local practicing physicians, and the control of tuberculosis has been made in most instances a major part of the health program.

This emphasis on one disease is the result of general recognition that tuberculosis is one of the most serious causes of disability in those of college age. The sharp upward trend of the tuberculosis mortality curve from the low level of prepuberty years to the high level of early adult life coincides with the age period of the college student. Moreover, it is now generally recognized that although the peak of tuberculosis mortality occurs after the college age, the beginnings of the disease are commonly traceable in the individual cases to the period of the late teens or early twenties.

Thus the colleges are faced at once with a problem and a great opportunity. The problem lies in the susceptibility of the age period and the corresponding relative concentration of disease, and the opportunity in the now well developed large scale methods for early recognition of cases of tuberculosis, permitting prompt arrest of many cases and prevention of serious illness or death. The colleges constitute one of the great filters through which a section of the youth of the nation passes. Seldom after the college age is it so easy to institute mass measures for prevention of the disease.

The importance of mass measures for early diagnosis is evident in the nature of tuberculosis. It is probable that the majority of cases of pulmonary tuberculosis still come to medical attention for the first time when already in an advanced state. It is true that there is no way to find the exact proportion of tuberculosis recorded as minimal when first seen by private physicians. The nearest approach to an estimate can be made through the records of hospitals and sanatoriums for tuberculosis. A survey of tuberculosis hospitals and sana-

toriums in the United States, reported by the American Medical Association¹ in 1935, recorded 13.1 per cent of 66,861 patients as admitted in the minimal stage, and 29.7 and 57.2 per cent respectively as moderately and far advanced. Some of the total admissions represented transfers from other sanatoriums, and doubtless in many cases considerable time had elapsed between first diagnosis and sanatorium entrance. Nevertheless the figures seem significant as an indication of general late diagnosis of tuberculosis, since the current medical trend is to provide institutional care as rapidly as possible for patients found to have this disease.

The reason for the general delayed diagnosis of tuberculosis lies in the fact that its symptoms are trivial in the early stage and commonly not serious enough to urge the patient to seek medical attention. Herein lies the opportunity for the colleges, which control a large body of susceptible youth and can at no great inconvenience to the students subject the whole group to measures for locating all the incipient cases.

The success of an active program for finding the disease, as compared with a passive one in which responsibility is placed on the student to seek medical assistance when he feels he needs it, has been described by numerous physicians from college health services in recent years. Myers and Wulff,² in recording the experience of the University of Minnesota, wrote: "In the early days of our work we had no special organization for finding tuberculosis in the student body. We were so confident that clinical cases of tuberculosis would all present symptoms as early manifestations that we thought it was safe to wait until symptoms appeared."

... We had not then had an opportunity to observe the chests of the same individual over years and see lesions appear and progress to massive proportions without the individual suffering a single symptom." Diehl,³ at the same university, reported that among 2,500 students entering in 1931 a program of tuberculin testing and roentgenographing of positive reactors resulted in the finding of fifteen cases of active tuberculosis of which one was far advanced, five were moderately advanced and nine were minimal. He said, "Had we depended on physical examination and history alone for ordering x-rays of the chest, ten of the fifteen cases would have been missed."

The Tuberculosis Committee of the American Student Health Association⁴ noted that in the year 1934-1935 in seventeen colleges with 85,428 students and an active tuberculosis program the rate for cases discov-

1. Survey of Tuberculosis Hospitals and Sanatoriums in the United States by the Council on Medical Education and Hospitals of the American Medical Association, *J. A. M. A.* 105:1855 (Dec. 7) 1935.

2. Myers, J. A., and Wulff, M.: Eleven Years' Observations on Tuberculosis Among University Students, *Am. Rev. Tuberc.* 26:530 (Nov.) 1932.

3. Diehl, H. S.: *Proc. Am. Student Health A.* Bull. 15, 1931, p. 128.

4. Ferguson, L. H.; Myers, J. A.; Shepard, C. E.; Lees, H. D., and Stiehm, R. H.: Fifth Annual Report of the Tuberculosis Committee of the American Student Health Association, *Journal-Lancet* 56:492 (Sept.) 1936.

ered was 5.7 per thousand, while in three other colleges, with an enrolment of 13,000 students and without an active tuberculosis program, the rate was only 1.2 cases per thousand, about one fifth as many. The only reason to be assigned for the difference is that in the one group the institutions actively sought out cases, thereby discovering many not sufficiently advanced to cause symptoms, while the other institutions waited for the development of clinical illness and solicitation by the student himself, while incipient symptomless disease remained unknown.

Soper and Wilson⁵ stated that fifteen years of experience has indicated the futility of the old current methods of attack against tuberculosis in detecting early cases. They wrote: "Far too often pathological changes are moderately or far advanced when first discovered, or the symptoms are too few to cause the patient to consult a physician when the disease is still in an

five early cases in the same time in students who had no symptoms. During this period other cases were discovered on the basis of symptoms, but in all these cases the disease was advanced.

The standard case finding program advocated by the Tuberculosis Committee of the American Student Health Association calls for special history forms to elicit evidence of tuberculosis, physical examination and the specific procedure of tuberculin testing the entering students, roentgenographing the positive reactors and reexamining the negative group at intervals. The figures obtained for the incidence of tuberculous infection and the extent of clinical disease in college students are interesting and informative. It is significant that they vary consistently for different parts of the country.

Until recently the tuberculin test has not been on a standardized basis. Aside from real variations in the extent of infection there is variation in the college reports both because of differences in the quality of tuberculin used and because of the employment of different dosages. Variation due to the personal factor in reading reactions is probably of minor importance, as the student health officers in charge of tuberculosis programs in the colleges represent a highly trained group, practicing essentially the same technic. But it has been pointed out recently that variations due to weak tuberculin and the failure to follow with stronger concentrations the negative responses to the weak doses commonly employed for initial tests are responsible for some of the abnormally low incidence of positive reactions reported from some quarters.

Because of this variability, space will not be taken here for review of the several comprehensive reports on the incidence of tuberculous infection in the students of American colleges and universities. Figures range from 12 per cent of 3,000 students reported from the University of Iowa in 1933 to 62 per cent of 3,000 reported from Yale, and 98 per cent of senior medical students reported by Hetherington, McPhedran, Landis and Opie in the University of Pennsylvania. Details can be found in the papers already cited.

The reports are equally variable on the incidence of clinical disease in the colleges with tuberculosis programs. Ferguson⁸ as chairman of the Tuberculosis Committee of the American Student Health Association has summarized the reports from time to time in his annual reports to the association. In 1933 the highest case incidence was 13.7 cases per thousand for men and 12.7 for women, while the lowest case incidence for both men and women was 3.1 per thousand. The average for the group surveyed was 6.4 cases per thousand in men and 7.5 cases in women, a sex difference corresponding more closely to the difference in tuberculosis mortality in the two sexes at the age period concerned. In this connection it may be noted that Cunningham⁹ at the University of California called attention to a preponderance of cases in women in the age period 18-23 years.

The thorough study of Stiehm at the University of Wisconsin is enlightening and may be looked on as representative of a large section of the country. During the year 1933-1934 2,412 students were tested with tuberculin. Thirty per cent reacted positively. The positive reactors were roentgenographed. In approximately 5 per cent of them, or 1.5 per cent of all the students, roentgenologic examination revealed adult-

TABLE 1.—Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Male and Female

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University.....	Soper	1,501	20.54	47.9
Rutgers University.....	Kler	397	17.93	48.9
University of Pennsylvania...	Lees	1,229	18.87	47.9
Haverford College.....	Taylor	181	17.46	65.7
Bryn Mawr College.....	Leary	416*	19.5	46.5
Emory University.....	Blackford	120†	22.54	48.3
The Pennsylvania State College.	Ritenour	1,159	19.29	41.2
Ohio Wesleyan University...	Blydenburgh	731	19.09	23.4
University of Wisconsin...	Stiehm	3,251	19.12	28.6
Iowa State College.....	Edwards	1,450	18.39‡	20.6
University of Kansas.....	Canuteson	1,308	19.25	32.1
University of New Mexico...	Werner	329	23.38	71.1
New Mexico State Teachers College.....	Werner	155	23.62	80.0
Seven Idaho colleges.....	Several	888	Not obtained	18.2
University of Oregon.....	Hayes	1,055	19.45	48.5
Stanford University.....	Shepard	1,083	19.73	40.5
San Jose State College (California).....	Mason	286	20.49	51.4
Compton Junior College (California).....	Smart	762	18.17	40.0
University of California (Berkeley).....	Legge	2,300	17.89	31.5
University of California (Los Angeles).....	MacKinnon	213	20.25	57.7
		18,744		

* All college classes.

† Medical students only.

‡ Positive reactors only.

early stage." In their own experience at Yale University they found that an active case finding program based on mass tuberculin testing and x-ray examination in the two years of 1930-1932 brought to light more cases (forty-three) than were found in the preceding ten years (thirty-eight) by routine history and physical examination alone.

At the University of Wisconsin, Stiehm⁶ recorded an increase of 430 per cent above a previous fourteen year average, after the institution of a definite program for discovering cases of tuberculosis in the student body. In a discussion of the procedure at Stanford University, Shepard⁷ noted that a general program encouraging students to report symptoms brought to light only three early cases in two years, and two of them with the serious complication of hemorrhage, while a standard tuberculin-x-ray program discovered

5. Soper, W. D., and Wilson, J. L.: The Detection of Pulmonary Tuberculosis in 3,000 Students Entering Yale University, *Am. Rev. Tuberc.* 26: 548 (Nov.) 1932.

6. Stiehm, R. H.: (a) Tuberculosis Among University of Wisconsin Students, *Am. Rev. Tuberc.* 32: 171 (Aug.) 1935; (b) Early Pulmonary Tuberculosis and Its Diagnosis, *Am. J. M. Sc.* 191: 542 (April) 1936.

7. Shepard, C. E.: Campaign Against Tuberculosis in College Students, *Am. J. Pub. Health* 25: 1118 (Oct.) 1935.

8. Ferguson, L. H.: A Study of College Students, *J. Outdoor Life* 31: 299 (Aug.) 1934.

9. Cunningham, R. L.: Tuberculosis Among University Women, *Am. Rev. Tuberc.* 31: 576 (May) 1935.

type tuberculous infiltration. In nearly one fifth of these, i. e., about 1 per cent of the positive reactors and 0.2 per cent of all the students tested, the disease discovered was serious enough to require sanatorium care.

Aside from the differences due to sex, characteristic variations according to age and course of college study have been discovered. Soper and Wilson in the students

TABLE 2.—Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Male

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University.....	Soper	1,311	20.06	46.4
Rutgers University.....	Kler	397	17.93	48.9
University of Pennsylvania..	Lees	1,045	18.93	48.8
Haverford College.....	Taylor	181	17.46	65.7
Emory University.....	Blackford	120*	22.54	48.3
The Pennsylvania State College.....	Ritenour	857	18.97	40.7
Ohio Wesleyan University....	Blydenburgh	271	19.63	28.0
University of Wisconsin.....	Stiehm	2,123	18.97	30.8
Iowa State College.....	Edwards	1,120	17.72†	21.4
University of Kansas.....	Canuteson	912	19.34	35.1
University of New Mexico....	Werner	185	22.02	72.7
New Mexico State Teachers College.....	Werner	60	24.95	81.1
Six Idaho colleges.....	Several	341	Not obtained	22.5
University of Oregon.....	Hayes	579	19.55	49.9
Stanford University.....	Shepard	708	19.84	45.0
San Jose State College (California).....	Mason	84	19.44	67.8
Compton Junior College (California).....	Smart	365	18.30	44.6
University of California (Berkeley).....	Legge	1,259	17.36	33.6
University of California (Los Angeles).....	MacKinnon	213	20.25	57.7
		12,140		

* Medical students only.
† Positive reactors only.

entering Yale in 1931 found an incidence of positive tuberculin reactors of 53.5 per cent in undergraduates at an average age of 18 years and 8 months, and 67.7 per cent in graduate students, who averaged 24 years and 6 months in age. Among the graduates were students in the various professions. The rate of infection of entering graduate students ranged from 57.8 per cent among law students to 76.9 per cent in medical students. The variation in the amount of clinical tuberculosis uncovered was parallel. Stiehm studied the rate of increase in infection with the passage of time at the University of Wisconsin. Four hundred and eighty-five students who were negative to tuberculin in the fall of 1933 were retested eighteen months later. Forty-five, or 9.3 per cent, had become positive to tuberculin.

TESTS IN AMERICAN COLLEGES IN 1935-1936

Observations such as the last cited have maximum significance when the tuberculin used is standard and of unvarying strength. When two different tuberculins are used, such a result is of much less significance. So, too, when different samples of tuberculin are used in the various surveys throughout the country the epidemiologic importance of the results obtained is uncertain. On the other hand, when surveys are made in different parts of the country and on students of varying background and are continued over a period of years, and a tuberculin of unvarying strength is employed, with constant technic, the results are of great importance for general epidemiologic understanding.

The only surely uniform tuberculin for testing purposes is the active principle itself, in solutions of standard concentration. In the purified protein derivative of tuberculin described in 1934¹⁰ we believe the active

principle of tuberculin has been secured in reproducible and practically pure form. This tuberculin was first used in colleges in the fall of 1934, and the results in 8,328 students in eleven colleges were reported to the American Student Health Association in December of that year.¹¹ The colleges for the most part drew their students from the general region of their own location. A definite variation in the rate of infection in different sections of the country was shown. The rate on the Atlantic seaboard was relatively high, that in the Middle West relatively low, and that for the West Coast fairly high again.

In order to collect more figures as well as to assist in the promotion of college tuberculosis programs, an offer was made by the Henry Phipps Institute in the summer of 1935, before the College Hygiene Association and the American Student Health Association, to furnish purified protein derivative without cost to those colleges or universities carrying out at least 500 complete tests, using the regulation dose of 0.00002 mg. for the first test and a second dose of 0.005 mg. on those failing to react to the first injection, and finally sending their results to the Institute for compilation. Two biological supply houses, which have cooperated with the National Tuberculosis Association in its research program,¹² cooperated again by contributing to the Henry Phipps Institute considerable amounts of purified protein derivative for incorporation in standard solution for distribution. The material was sent out to the student health services in the colleges in 1 per cent solution, which has been found to be perfectly stable. Instructions were furnished for making such dilutions that 0.1 cc. furnished 0.00002 mg. and 0.005 mg. doses. Record forms were also sent. It was requested that all

TABLE 3.—Incidence of Positive Tuberculin Reactions (Purified Protein Derivative) in White American College Students (Chiefly New Entrants) in 1935-1936, Female

College	Physician	Number Tested	Average Age	Per Cent Positive
Yale University.....	Soper	190	23.99	57.9
University of Pennsylvania..	Lees	184	18.51	42.9
Bryn Mawr College.....	Leary	416*	19.5	46.5
The Pennsylvania State College.....	Ritenour	302	20.47	42.7
Ohio Wesleyan University....	Blydenburgh	460	18.73	23.8
University of Wisconsin.....	Stiehm	1,123	19.41	24.6
Iowa State College.....	Edwards	330	21.40†	19.1
University of Kansas.....	Canuteson	396	19.05	25.3
University of New Mexico....	Werner	144	25.11	68.7
New Mexico State Teachers College.....	Werner	86	22.55	79.0
	Several	527	Not obtained	15.3
	Hayes	476	19.33	46.8
Stanford University.....	Shepard	325	19.53	30.7
San Jose State College (California).....	Mason	202	20.91	44.5
Compton Junior College (California).....	Smart	397	18.03	25.7
University of California (Berkeley).....	Legge	1,041	17.42	29.0
		6,604		

* All college classes.
† Positive reactors only.

unused dilution be discarded at the end of the day. Those colleges practicing mass testing of from 100 to 500 students a day used the material very economically, while in others, in which only a few tests were made each day, there was considerable waste.

The results of 18,744 tests were returned for analysis. They are summarized in the accompanying tables. In almost all cases the tests were complete, the results of

10. Seibert, Florence B.: Isolation and Properties of the Purified Protein Derivative of Tuberculin, *Am. Rev. Tuberc.* 30: 715 (Dec.) 1934.

11. Long, E. R.: Tuberculosis in College Students, with Special Reference to Tuberculin Testing, *Journal-Lancet* 55: 201 (April) 1935.
12. Sharp & Dohme in Philadelphia and Parke, Davis & Co. in Detroit.

the second dose being recorded for those failing to react to the second dose. In about 5 per cent of cases, however, students did not return to have the second tests read. In this small number of cases mathematical correction was made by computing as positive among this group the same proportion as were found to be positive among those who did return for the reading of their second test.

Variation on a geographic basis is at once apparent from table 1. The results for the academic year 1935-1936 confirm our previous report covering the year 1934-1935. A high rate was found in the East, a lower rate in the Central states, and a relatively high but inconstant rate on the Pacific Coast. A noteworthy contrast is observed between Idaho, with a very low rate, and New Mexico, with the highest rates seen in the country.

Secondly, definite variation by sex can be seen from comparison of tables 2 and 3. Where the average age for the two sexes is greatly different, significant comparisons obviously cannot be made. However, the difference is well brought out by comparison of certain universities in which the age levels for the sexes are comparable. The universities of Pennsylvania, Wisconsin, Kansas and California may be cited as examples, representing the eastern, central and western sections of the country. Of the Pennsylvania men, with an average age of 18.9 years, 48.8 per cent were positive to tuberculin, while of the women, averaging 18.5 years, 42.9 per cent were positive. More significance could be attached to these figures if the number of women examined (184) were higher. The numbers at the other three institutions were statistically significant, however. At Wisconsin, of 2,123 men averaging 19 years, 30.8 per cent were positive to tuberculin, while of 1,128 women averaging 19.4 years, only 24.6 per cent were positive. At Kansas, of 912 men averaging 19.3 years of age, 35.1 per cent were positive as compared with 25.3 per cent of 396 women, whose average age was 19.1 years. At California (Berkeley) the figures were: 1,259 men, average age 17.4 years, 33.6 per cent positive to tuberculin; 1,041 women, average age 17.4 years, 29 per cent positive. The figures for Stanford University are similar to those from Berkeley except that the age of the students is greater and the rate for both sexes correspondingly higher. The figures for Stanford University were: 708 men, averaging 19.8 years, 45 per cent positive; 325 women, averaging 19.6 years, 30.7 per cent positive.

This sex difference did not always obtain, however. At Oregon, for example, where the sexes were equally represented of the same age, no significant difference was found. At other institutions such as Yale and Pennsylvania State University, where the entering women were on the average considerably older than the men, their infection incidence, as measured by the tuberculin test, was appreciably higher than that of the men.

RESULTS

The geographic variation, which now seems established,¹³ is probably a reflection of the level of tuberculous infection in the community concerned. Objection might be made to this view on the ground that the college students at one institution do not necessarily represent the geographic location of the college, since they might have come from any part of the country. However, correspondence with the administrative offi-

cers of the colleges brought out the fact that with a few exceptions the majority of students were indeed of the general region in which the college was situated.¹⁴ In the state universities the representation was almost entirely from the same state. It is interesting to note in this connection that a group of students at one university, but themselves from distant regions, may bring the rate characteristic of the distant regions with them. Stiehm¹⁵ found for the two years 1933-1935 a rate of 26.1 per cent for residents of Wisconsin at the University of Wisconsin and the much higher rate of 46 per cent for residents of eastern states attending Wisconsin.

The objection that college students are not necessarily representative of their region because they are a minority selected from a certain social and economic level is reasonable. It can only be said that college attendance today is by no means restricted to the upper social and economic levels. This fact is especially apparent in the state universities. In any event no claim is made that the college figure is the figure for the corresponding age in the population of the region concerned. We do feel, however, that it reflects the figure for the general population in about the same way in the different regions.

The high rate for the East is usually attributed, and with probable correctness, to the higher density of population in the eastern region, imposing more frequent contact and in the long run more exposure to tuberculosis. The mortality in the more crowded regions is known to be in general higher than in the less crowded, and presumably morbidity and chance for further spread of infection correspond to the greater mortality.

Conversely the relatively low rate in the Middle West can be explained on the basis of emanation of the students from less crowded regions of lower tuberculosis morbidity. The relatively high rates for the West Coast offer a problem. In part, at least, they may be attributed to the fact that for several decades the West Coast has received an immigration of tuberculous patients who have settled and raised their families there. Doubtless a good deal of community spread of infection has occurred from this immigration. In favor of this hypothesis is the high rate in the University of California at Los Angeles, notable in comparison with the rate in the University of California at Berkeley. To be sure the figures for the southern group are small and the age incidence is higher, but the disparity in rate of infection is so great as to suggest a significant difference, and it seems plausible to attribute the high rate in the southern institution to the resort character of southern California.¹⁵

14. At Yale University 71 per cent of the students tested were reported as from New England and the Middle Atlantic states. Eighty-two per cent of the tested students at the University of Pennsylvania came from less than 200 miles of Philadelphia. Approximately 70 per cent of the students at Bryn Mawr came from the North Atlantic states. Haverford students were described as "chiefly from eastern Pennsylvania and New Jersey." Eighty-four per cent of tested students at the University of Wisconsin were residents of the state. Those tested at Iowa were listed as "mostly from Iowa." At the University of Kansas 80 per cent of those tested were from the state and 95 per cent from Kansas or states immediately adjoining. At the University of New Mexico the situation was somewhat different, 42 per cent listed as natives while a considerable number were recent immigrants from the East. Among the latter group were numerous members of health-seeker families. Ninety per cent of the students tested at the University of Oregon were from the state and 98 per cent from Oregon or contiguous states. Of 2,900 students registered at San Jose State Teachers College in California only fourteen were from outside the state. Of the students tested at Stanford University, 74 per cent were from the state of California.

15. Dr. MacKinnon has written the authors that the rate for entrance for the year 1936-1937 is about 13 per cent lower than for the previous year.

However, this leaves the high rate for the University of Oregon still to be explained, and no explanation is offered at present.

The contrast between the Idaho schools in the Northwest and the New Mexico schools in the Southwest is almost certainly to be explained on the basis of the number of tuberculous families in the two regions and relative abundance of opportunity for contact. Shepard⁷ reported a communication from Dr. Halvorsen of the University of Idaho to the effect that almost no students from the rural districts of Idaho react to tuberculin, while those from the mining districts of southern Idaho are apt to be positive reactors. New Mexico, on the other hand, has long been a resort for the tuberculous, and it seems inevitable that this fact would be reflected in the incidence of infection among students at the state university. Miss Ruth Connely, executive secretary of the New Mexico Tuberculosis Association, has communicated to us a fact interesting in this connection. In an extensive survey to determine the incidence of positive reactors to tuberculin in the schools of Albuquerque, a relatively low percentage of reactors was found in a large group of Spanish descent as compared with an equally large number of American ancestry. The former group came to school from mountain districts where their ancestors, original Spanish immigrants, had settled nearly three centuries before, while the group of American ancestry to a considerable extent were made up of children of health seekers who had come directly to take up residence in the urban centers of the state, such as Silver City and Albuquerque.

The higher incidence of infection in entering college men than entering women noted in this study conforms with the figures given by Ferguson,⁴ who reported to the American Student Health Association that in the three years 1932-1935 lower figures for women than for men were recorded each year for the group of colleges reporting. It is an established fact that the mortality from tuberculosis is higher in young women than young men, and from this a corresponding morbidity might be argued. But this offers no evidence as to the mere incidence of infection, which is dependent on home and subsequent more casual contact. There is some reason to believe that, while the home contacts for the two sexes are approximately the same, boys are less restricted in their contacts outside the home and therefore have a greater opportunity for chance infection.

SUMMARY

1. During the academic years 1934-1936 statistics were gathered from American colleges using the standardized tuberculin adopted by the Committee on Medical Research of the National Tuberculosis Association; namely, purified protein derivative tuberculin.

2. The results for 18,744 students, chiefly new entrants, in twenty colleges reporting in the year 1935-1936 represent accurately completed tuberculin tests in which a strong standard dose of purified protein derivative was administered to all negative reactors to an initial small standard dose.

3. A geographic variation in the incidence of tuberculous infection was found, with relatively high rates (from 40 to 60 per cent) in the East and Far West and low rates (from 20 to 30 per cent) in the Central states. Since the majority of the students in the colleges reporting were residents of the general region of their college, the figures are believed to reflect the incidence of tuberculous infection in the populations of

those regions. Excessive rates were found in regions noted as resorts for tuberculous patients.

4. In colleges reporting tests on large groups of young men and women of approximately the same average age, the rate of positive tuberculin reaction was higher in men than in women.

Seventh and Lombard streets.

THE USE OF BENZEDRINE SULFATE IN POSTENCEPHALITIC PARK- INSON'S DISEASE

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LOS ANGELES

In 1933, when benzedrine (beta-phenylisopropylamine) sulfate was first used in the treatment of narcolepsy,¹ it was noticed that the patients being treated not only stopped having their attacks but also reported that they tired less easily and felt more energetic in general. It was therefore thought advisable to experiment with benzedrine sulfate in conditions in which asthenia is a prominent symptom.

Twenty-eight patients with postencephalitic Parkinson's disease, ten patients with arteriosclerotic Parkinson's disease and twenty-two patients with psychoneurosis have been given benzedrine sulfate for periods varying from four weeks to sixteen months. The oldest patient in the postencephalitic group was 54, the youngest 15, with the average age 32. A history of encephalitis was definite in seventeen patients, was probable in four and could not be obtained in seven. The clinical picture was characteristic in every case, though the following signs varied from patient to patient: rigidity of the neck, trunk and extremities; loss of associated movements; tremor of the head, body or extremities; masklike facies, with slowness or absence of emotional expression; monotonous voice; slurred speech; loss of postural reflexes; oculogyric crises; increased salivation; oily skin; impairment of sleep mechanism (somnia by day and insomnia by night); weakness, and easy fatigability and lack of "energy" (often complete inability to work).

All the postencephalitic patients were tried on benzedrine (benzedrine sulfate) alone; twenty-one were given scopolamine or stramonium alone, and, in addition, these drugs in combination with benzedrine in various doses. Twelve patients were tried on ephedrine sulfate (from three-eighths to three-fourths grain [0.024 to 0.048 Gm.] three times a day) alone and in combination with scopolamine or stramonium in order to compare the effectiveness of benzedrine with ephedrine. An effort was made to determine the regimen on which each patient felt the greatest benefit. The arteriosclerotic group was given benzedrine alone, scopolamine alone and the two in various combinations. The psychoneurotic group was given benzedrine alone.

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1. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, *J. A. M. A.* 105:2051 (Dec. 21) 1935.

Since the evaluation of the results depended largely on the subjective accounts of the patients, efforts were made to reduce the effect of suggestion to a minimum. The patients were told that they were to try a new medicine which might not help them but could do them no harm. They were not told in what direction improvement might be expected; they were told, in addition, that some of the medicine might have no effect; finally they were urged to be very critical of any change since, if the medicine had no effect, there were other medicines and combinations that we then wished to try. In nineteen of twenty-eight cases the results were controlled by the substitution of blank pills, exactly similar in taste and appearance to the active pills, without the patient being informed of the change.

TABLE 1.—*The Improvement in Subjective Symptoms in Twenty-Eight Cases of Postencephalitic Parkinson's Disease in Which Benzedrine Sulfate Was Taken Either Alone or After Addition to a Scopolamine or Stramonium Regimen**

Case	Age	Sex	History of Encephalitis	Energy and Well Being	Drowsiness	Strength	Tremor	Rigidity	Oculogyric Crises	Ability to Work
1	16	♂	?	++	..	++	..	0	..	+
2	27	♂	+	+	+	+	++	+	..	+
3	42	♀	+	+	+	+	++	+	..	++
4	31	♀	0	++	++	++	0	+	..	+
5	19	♂	+	++	++	++	..	+	..	++
6	30	♀	+	+	+	0	..	+	+	0
7	43	♂	0	+	+	+	..	0	+	+
8	28	♂	?	+	+	+	0	+	..	+
9	38	♀	?	+	+	+	..	+	..	+
10	32	♀	+	+	++	+	..	0	..	+
11	30	♂	0	+	+	..	+	+	+	0
12	54	♂	+	0	0	0	0	0	..	0
13	34	♀	+	..	..	0	..	..	..	0
14	47	♂	+	+	+	0	..	+	..	0
15	32	♂	+	++	+	+	..	+	..	+
16	32	♂	+	+	++	+	0	+	..	+
17	37	♀	+	++	+	+	++	+	..	+
18	29	♂	+	+	+	..	..	+	..	+
19	43	♂	+	+	++	+	0	+	..	+
20	27	♂	+	+	++	+	0	0	+	0
21	20	♂	+	++	++	+	+	+	+	+
22	34	♀	0	+	++	+	+	++	..	+
23	31	♂	+	+	+	+	+	+	+	+
24	15	♂	+	+	++	+	0	+	..	+
25	31	♂	0	+	++	+	0	+	..	+
26	28	♂	?	..	..	0	..	..	+	+
27	43	♂	0	+	++	0	..	0	..	+
28	43	♂	0	+	..	0	..	+	..	+
Percentages:			60%	96%	93%	73%	44%	71%	100%	79%

* + indicates improvement; 0, no change; .., symptoms not present.

On each visit the patient was first allowed to make a spontaneous general report as to whether he was better, the same or worse and what the changes were; he was then asked specifically about feeling of energy and well being, drowsiness, strength, tremor, rigidity, oculogyric crises and ability to work. Untoward effects were reported. The general appearance of the patient, the facial expression, the manner of speaking and the performance of ordinary muscular movements were observed and compared on each visit. These observations were found to tally closely with the patients' subjective feelings.

RESULTS

In Postencephalitic Parkinson's Disease.—Beneficial effects from benzedrine alone, or from the addition of benzedrine to scopolamine or stramonium, were reported by twenty-six (93 per cent) of the twenty-eight patients in this group (table 1; only cases 12 and 13 failed to show improvement). The most uniform result was that of a feeling of increased energy and well being. This was remarked in twenty-five of the twenty-six cases in

which lack of energy was a symptom, though expressed variously: "more pep," "more energy," "I feel more like doing things." Drowsiness and the necessity for frequent naps during the day was also eliminated completely in twenty-three of the twenty-four patients in whom these symptoms were found.

The following further reports were made: Twenty-two were able to do more work. One young man who had been practically helpless was able to get a job driving a truck; several women were able to resume their housework. Twenty patients observed a decrease in their muscular rigidity. Nineteen of the patients said they felt stronger. Seven patients observed a decrease or disappearance of their tremor, while nine noticed no change in tremor; the other twelve did not have tremor.

There were eight patients in the group who had frequent oculogyric crises. Scopolamine and stramonium had been effective in reducing the number of these attacks but had not succeeded in eliminating them. With the addition of benzedrine therapy the attacks completely disappeared in six patients, while their frequency and severity were greatly diminished in the other two; they recurred only when blanks were substituted for the active pills, the substitution being made in four cases. When given alone, benzedrine abolished the attacks of only two but reduced the frequency in the other six.

In every instance in which blank pills were given the next report of the patients indicated that the beneficial effects they had previously noticed had now disappeared. The manner of the reports varied considerably. Most of the patients came in discouraged, saying that the new medicine was no good after all, that perhaps its effects had worn off, that they might have acquired a tolerance for it. They related in detail all the original symptoms that had recurred. Two patients after being given blanks did not return to the clinic at all and had to be sent for. Five patients guessed that they had been given inactive pills as a test. Two said that, while they did not feel quite as bad as they did when they first came in, most of the improvement was gone.

It is of interest that of the two patients who had no improvement from benzedrine sulfate one had severe thalamic pain and the other complained only of tremor and slight rigidity.

Improvement was noted in only fifteen (53.6 per cent) of the twenty-eight patients when benzedrine was used alone; in two of these the improvement was felt to be equal to the effect from the combination of benzedrine with scopolamine or stramonium; in both of these cases, lack of energy and drowsiness were the outstanding symptoms.

Of the twelve patients on whom ephedrine was used alone, ten definitely felt no beneficial effect; that is, their symptoms grew worse. One felt that ephedrine was as effective as benzedrine and one could not be sure. Of the twelve patients on whom ephedrine plus scopolamine was used, seven were worse, two felt a slight benefit, and three felt as much benefit as on benzedrine therapy. These three were among the mildest cases in the group. Table 2 shows a graphic comparison of the beneficial effect of the various medications used in these cases.

Objectively, brief tests of muscular rigidity and strength were made on twelve patients. With regard to the degree of tremor, no reliable method for objective comparison was available, so that the patients' subjective

tive account had to be accepted. Timing for ten-second periods of the rapidity of complete flexion and extension of the arm at the elbow, also pronation and supination of the hand and forearm, were used to measure rigidity. Improvement as shown by the tests was considered definite only when the rapidity of movement was at least doubled during the test period. A simple spring dynamometer was used to test the strength of the grip. The best of three efforts was taken each time as the result of this part of the test.

The results of these tests were as follows: One patient out of five who were tested showed definite decrease in rigidity on benzedrine alone, while three out of these five showed definite improvement on scopolamine alone. When benzedrine and scopolamine were used in combination, of the seven who were tested, definite improvement could be demonstrated only in the four who benefited from scopolamine or benzedrine alone. There was no definite increase in strength in four patients on benzedrine alone or on scopolamine alone; two out of seven patients on benzedrine and scopolamine together, however, did show definite increase in strength. In other words, benzedrine had little objective effect on rigidity or strength, whereas scopolamine or stramonium was more effective in combating rigidity while equally ineffective in improving strength.

Five of the patients who received ephedrine were tested in the same manner: there was definite improvement similar to that obtained with benzedrine therapy in one; ephedrine plus scopolamine led to definite improvement in two, the same two that showed definite improvement on benzedrine and scopolamine; from the objective standpoint, therefore, benzedrine and ephedrine were similar in their failure to produce definite objective improvement in muscular strength and rigidity in the majority of cases.

In Arteriosclerotic Parkinson's Disease.—Benzedrine was given to ten patients with the arteriosclerotic type of Parkinson's disease. The ages of these patients varied from 58 to 76, the average age being 70. The chief complaints were coarse tremor of the extremities, muscular rigidity and, in contradistinction to the postencephalitic group, a degree of mental agitation which in two was extreme. The results were as follows: Six were worse, three remained unchanged and one felt better. When benzedrine was added to scopolamine or stramonium, of six patients two felt worse, three were unchanged and one felt better. The one patient who felt better in each instance had only very mild symptoms and was benefited also by blanks. Of the nine patients who were not helped by benzedrine, seven were helped by scopolamine while the other two were not helped by any medication. The untoward effects noted in the six who were made worse by benzedrine were insomnia in all six, restlessness and irritability in four, increased tremor in three, anorexia in three, and nausea and vomiting in two.

In Psychoneurosis.—Benzedrine sulfate was given to twenty-two selected patients with various forms of psychoneurosis in whom the chief complaints were also lack of energy, drowsiness, weakness and easy fatigue. Most of these patients were seen concurrently with the postencephalitic group. The procedure used in the two groups was identical. Yet in only two (9 per cent) of the psychoneurotic patients was there definite subjective improvement in asthenic symptoms as contrasted with

the improvement noted in 93 per cent of the postencephalitic group. This improvement was controlled by the substitution of blank pills in the patients who were benefited by benzedrine.

DOSAGE

The usual maintenance dose of benzedrine sulfate was from 10 to 20 mg. taken orally two or three times a day.² In one patient 5 mg. twice a day was the optimum dose. As much as 160 mg. a day for three weeks was taken by one patient without apparent harmful effect. We usually started with 5 or 10 mg. before breakfast and lunch and increased the dose gradually until the maximum therapeutic effect was obtained.

TABLE 2.—A Comparison of Symptomatic Improvement of Twenty-Eight Cases of Postencephalitic Parkinson's Disease in Which Benzedrine Sulfate, Scopolamine (or Stramonium), Ephedrine and Combinations of These Drugs Were Taken*

Case	On Benzedrine Sulfate Alone	On Scopolamine or Stramonium Plus Benzedrine Sulfate	Disappearance of Improvement After Substitution of Blanks for Benzedrine Sulfate	On Scopolamine or Stramonium	On Ephedrine Sulfate	On Scopolamine or Stramonium Plus Ephedrine Sulfate
1	++	..	..	..	..	..
2	++	..	..	..	..	..
3	++	..	+	..	..	..
4	++	..	+	..	..	..
5	+	++	+	+	..	..
6	0	++	+	+	..	..
7	+	..	..	..	..	..
8	+	++	+	+	0	0
9	+	++	+	+	±	±
10	+	++	+	+	+	+
11	+	++	+	+	..	..
12	0	0	..	+	..	..
13	0	0	..	+	0	0
14	+	..	..	..	..	..
15	+	..	+	..	..	..
16	+	++	+	+	..	..
17	0	++	+	+	..	..
18	0	+++	+	++	0	0
19	0	++	..	+	..	..
20	0	++	+	+	..	..
21	+	++	+	+	0	0
22	0	++	+	+	0	0
23	0	++	+	+	0	+
24	0	++	+	+	0	0
25	0	++	..	+	..	..
26	0	+++	+	++	0	++
27	+	++	+	+	0	±
28	0	+	..	0	0	0

* The number of +'s indicates the relative degree of improvement; ±, doubtful improvement; 0, no improvement.

Scopolamine hydrobromide from $\frac{1}{200}$ to $\frac{1}{100}$ grain (0.3 to 0.6 mg.) or stramonium leaves $2\frac{1}{2}$ to 5 grains (0.16 to 0.32 Gm.) were given two or three times a day, both alone and in combination with benzedrine in most cases, in an attempt to determine the most effective regimen.

The duration of action of an individual dose of benzedrine varied from three to seven hours, though most patients reported that beneficial effects began to wear off in four or five hours. Patients, particularly those with oculogyric crises, felt the effect of benzedrine come on in from fifteen to twenty minutes.

UNTOWARD EFFECTS

Transient untoward effects were noticed by twelve (43 per cent) of the postencephalitic patients. Eleven

2. All the benzedrine sulfate and other medication used, together with the blank pills, were furnished by Smith, Kline & French Laboratories, Philadelphia.

commented that they did not sleep well the first few nights following the beginning of treatment. The relative insomnia usually lasted no more than three days and usually wore off without the necessity of reducing the dosage of benzedrine. It was possible to eliminate this untoward action in most cases by starting the benzedrine slowly: 10 mg. on arising the first day with no further treatment that day, and 10 mg. morning and noon the next day, the dosage being increased thereafter as indicated. Evening doses were not given except in instances when patients did not wish to go to sleep until late. Dizziness or light headedness and a feeling of undue nervous tension appeared for a day or two at the beginning of the treatment in six cases and recurred temporarily when the dosage was increased later in three. Excessive restlessness and excitement occurred temporarily in two cases. These symptoms occurred on 20 mg. of benzedrine a day in one and on 40 mg. a day in the other and were eliminated by halving the dose in each case. Later the symptoms did not reappear when the dosage was raised to 30 mg. a day in each case. Nausea, anorexia and vomiting occurred on the first day of treatment in one case. Four patients noticed that their mouths and tongues were drier than usual while taking benzedrine.

It is interesting to mention here that two of our male patients, who had not taken scopolamine or other depressant drugs, reported that benzedrine sulfate produced in them an increase in sexual potency.

The effect of benzedrine on three other patients not otherwise included in this paper should be mentioned here. Two of these were women with involutional melancholia in whom asthenia was prominent among a great variety of other symptoms. Following the first few doses of the drug, both these patients became much worse generally, complained more about their symptoms and were so obviously agitated that commitment became necessary. The benzedrine apparently influenced the symptomatology of the psychosis, precipitating an active phase in place of the former depression in these two individuals. The third patient, a man aged 26, had been seen by a number of neurologists and psychiatrists because of peculiar "spells" and because of maladjustment and personality difficulties following an attack of probable encephalitis. A presumptive diagnosis of narcolepsy was made and the patient did fairly well on ephedrine for a time. When he changed to benzedrine he at first was much improved. When the dosage was raised from 40 to 60 mg. a day paranoid ideas and auditory hallucinations developed for the first time and the patient had to be hospitalized.

Thus far we have seen no evidence to indicate either an increasing tolerance to the drug or habit formation. Several patients who had taken the drug for six months or more were asked how they felt when it was withdrawn for periods up to three weeks; they all said their unpleasant symptoms returned and they felt worse, but not worse than they felt before ever taking the drug. The first patient with narcolepsy reported by Prinzmetal and Bloomberg¹ is still taking the same dose after three years. The possibilities of habit formation or of late untoward effects are, however, not conclusively ruled out by these observations or by others published to date. For this reason and because of the untoward effects that have been noted, the indiscriminate use of benzedrine is undesirable.

SUMMARY

The effect of benzedrine (beta-phenylisopropylamine) sulfate was studied in twenty-eight patients with postencephalitic Parkinson's disease. The dose varied from 10 to 160 mg. orally per day, either alone or in combination with scopolamine or stramonium. The study was controlled by the substitution of blank pills in nineteen of the patients and by the administration of benzedrine to a group of twenty-two psychoneurotic patients, all of whom complained chiefly of asthenia similar to the patients with postencephalitic Parkinson's disease. The effect of ephedrine was compared with benzedrine in ten patients. Benzedrine sulfate was tried in ten patients with arteriosclerotic Parkinson's disease.

The results in the postencephalitic group, which signify benefit derived from benzedrine alone or from the addition of benzedrine to an adequate scopolamine or stramonium regimen, were as follows: There was subjectively increasing energy in twenty-five out of twenty-six patients (those who complained of lack of energy), 96 per cent; disappearance of drowsiness in twenty-three out of twenty-four, 95 per cent; increased feeling of strength in nineteen out of twenty-six, 73 per cent; decreased or abolished tremor in seven out of fifteen, 44 per cent; subjectively decreased muscular rigidity in twenty out of twenty-six, 77 per cent; disappearance of oculogyric crises in six of the eight patients who had this symptom, and greatly diminished frequency and severity of the symptom in the other two, and increased ability to work in twenty-two cases, 79 per cent.

Benzedrine alone was beneficial in fifteen cases, 53.6 per cent, but this effect was equal to the effect of the combination with scopolamine or stramonium in only two cases, 7 per cent. In all, twenty-six of the twenty-eight patients (93 per cent) showed definite improvement directly traceable to benzedrine. In every instance, when blank pills were substituted for benzedrine, beneficial effects were no longer reported and the original symptoms returned. Ephedrine alone was effective in one out of twelve cases; the addition of ephedrine to scopolamine or stramonium caused improvement in five out of twelve, but this improvement was equal to the benefit derived by adding benzedrine to scopolamine or stramonium in only three.

As to the results of the objective tests, rigidity was demonstrably decreased in a number of cases by the use of scopolamine or stramonium, while benzedrine and ephedrine were much less effective. There was no consistent increase in strength from any of the modifications used.

None of the ten patients in the arteriosclerotic group were benefited by benzedrine, while untoward symptoms appeared in six. In the psychoneurotic group only two patients out of twenty-two, 9 per cent, seemed to be benefited by benzedrine.

CONCLUSIONS

1. Benzedrine sulfate is a useful drug in the symptomatic treatment of postencephalitic Parkinson's disease.

2. Used alone, benzedrine sulfate is effective in this condition when symptoms of drowsiness and lack of energy predominate, but usually it is most effective when used in combination with scopolamine or stramonium.

3. Although improvement in muscular rigidity and strength from the use of benzedrine sulfate was not

conclusively demonstrated by means of objective tests, these symptoms were subjectively improved in more than 70 per cent of the cases.

4. Benzedrine sulfate seems to act almost specifically in abolishing or reducing the number and severity of oculogyric crises.

5. Benzedrine sulfate was of no value in ten cases of arteriosclerotic Parkinson's disease.

6. Benzedrine sulfate was of no value in twenty out of twenty-two cases of psychoneurosis with asthenia as a prominent symptom. In both this group and the group presenting arteriosclerotic Parkinson's disease, untoward effects frequently developed.

7. Benzedrine sulfate apparently has a greater stimulating action on the central nervous system than ephedrine.

8. Until more is known about the action of this drug, it should be used with caution.

REPORT OF CASES

CASE 3.—Mrs. E. J., aged 42, a housewife, had encephalitis in 1919. In 1932 she first noticed tremor of the left arm and generalized muscular rigidity.

When seen, April 3, 1934, her presenting complaints were of feeling "tired," "dopey-like," having "no energy at all," and inability to do her housework. On examination it was noticed that the patient's voice was dull and monotonous and that she stared fixedly. There was generalized muscular rigidity, cog-wheel in character, greater on the left side. There was a rhythmic coarse tremor of the left hand and arm. Postural reflexes were markedly impaired and there was a loss of associated movements.

The patient was given 10 mg. of benzedrine sulfate, morning and noon, and on April 5 she reported: "My nerves are more quiet," "I don't shake so much," "I don't feel quite so tired as I did." She said that her sleepiness during the daytime had entirely disappeared but that she also noticed that she had not slept well at night. The benzedrine sulfate was continued and the morning dose was increased to 20 mg.

April 10 the patient reported "I'm getting along fine now. The medicine makes me feel much better. I don't feel sleepy and dopey the way I used to. I don't shake half as much as I did, and I'm not so stiff." She added that she was now doing all her own housework, including the washing. The other day she had even cleaned the stove—"something I haven't done for years." Her sleeping at night was back to normal. It was the impression of the examiner that the patient looked much brighter and livelier and talked with more inflection in her voice. She was given benzedrine in solution in the same dosage.

April 15 she reported that the liquid medicine was exactly the same as the pills. All the beneficial effects had continued. She was now given blank pills without being told of the change.

April 22 the patient reported: "These pills had no effect at all. I stopped after taking them twice. I feel the same now as before I came to you." She was given the active pills again.

April 29 she said she "noticed the difference right away." All her improvement had come back again. She was even able to wash the floor.

CASE 8.—J. S., a single, unemployed man, aged 22, had noticed stiffness, tremor and some clumsiness especially of the left arm and leg for three or four years. He remembered having diplopia for one day in 1919; other evidence pointing to encephalitis was lacking.

When first seen, Jan. 9, 1936, he complained chiefly of lack of energy, easy fatigue and "tapping" of the left foot. He had a monotonous, rather explosive manner of speaking, masklike face, with cog-wheel rigidity and rhythmic coarse tremor of all the extremities.

He was given 10 mg. of benzedrine sulfate morning and noon. He reported, January 27, that he felt very much better with "more pep and less shakes," and asked for more of the new medicine. He was given blanks. The day following he returned saying "I had no effect at all after the last pills." He was given active pills and except for infrequent insomnia and tremor he got along quite well. May 4 he reported feeling rather poorly, having lost weight. He was given 25 mg. of

benzedrine sulfate and stramonium leaves $2\frac{1}{2}$ grains (0.16 Gm.) three times a day. In a week he noticed improvement in all his symptoms, saying "I haven't felt better in a long time." Blanks were then substituted for the benzedrine sulfate and he returned May 16 feeling very drowsy and tired out and with a marked speech defect. Resumption of active pills allayed these symptoms; omission of the stramonium May 27 was followed in a few days by some exacerbation of rigidity and tremor but not any of the more subjective symptoms.

When last seen, again on the combined medication, he had gained 10 pounds (4.5 Kg.) and had been doing some carpentering about his home, which he had previously been unable to do.

CASE 11.—G. F., an unemployed man, aged 30, without any direct or indirect history of encephalitis, began at the age of 16 to have tremor and rigidity, first in the right hand, then in the left, and finally in the legs. His speech became slurred and difficult and finally he began to have oculogyric crises, which were now occurring four or five times a week, whenever he "got excited" or used his eyes too much.

When seen Feb. 4, 1936, physical examination revealed tremor and rigidity of all extremities, more on the left side, markedly impaired postural reflexes and associated movements, mumbling, monotonous, almost unintelligible, speech, marked salivation with drooling at the mouth, and an almost constant fluttering of the eyelids. He was taken off the tincture of stramonium (from 60 to 100 minims [3.6 to 6 cc.] three times a day), which he had been taking, and was given 10 mg. of benzedrine sulfate twice a day; he returned in four days saying that he felt worse, though he seemed more alert to the examiner.

He was then put on stramonium leaves $2\frac{1}{2}$ grains (0.16 Gm.) plus 5 mg. of benzedrine sulfate three times a day. He returned in two weeks and said that he felt fine. He had much more energy, had been able to play baseball and, most striking of all, had had only one oculogyric crisis, despite the fact that he had been "excited" several times and had done a good deal of reading.

The following week he caught cold and his symptoms returned. The dose of benzedrine was then doubled and for the next two months he felt quite well. During this entire period he had only one mild oculogyric crisis, and that accompanied a severely upset stomach following the Passover feast. He played tennis and baseball; his speech became intelligible, a fact remarked on by his friends; he no longer felt like sleeping during the day; his tremor and rigidity also seemed decreased.

May 12, blanks were substituted for the benzedrine, the stramonium being continued. He returned May 19 saying—and looking as if—he had slowed up in every way; he had become "nervous and stiff" and had had three oculogyric crises. Ten milligrams of benzedrine sulfate intramuscularly had no effect after an hour on the oculogyric crisis he was having at the time. On resumption of the active pills, however, he straightened out as before and has had no further oculogyric crises to date.

CASE 18.—J. E., an unemployed man, aged 29, had encephalitis in 1918. About ten years later he began to notice that his movements were slower than normal. About five years ago his eyelids first began to "flicker" uncontrollably and finally he began to have oculogyric crises. He had taken scopolamine for seven years off and on, as much as sixteen $\frac{1}{400}$ grain (0.00065 Gm.) pills a day. He had noted that it usually helped to control the oculogyric crises.

When we saw him for the first time, Feb. 10, 1936, he complained chiefly, in addition to his eyes, of slowness of thoughts and action: "I have to think of every movement I make—I can't seem to make any unconscious movements at all." He had never noticed tremor or rigidity. Physically he was in good general condition and seemed normal in every way except for a blank, expressionless face, glassy wide-open eyes, monotonous jerky speech, and an avoidance of all unnecessary movements.

He was given 10 mg. of benzedrine sulfate twice a day in addition to the eight or nine scopolamine $\frac{1}{400}$ grain pills that he had been taking. Drowsiness, slowness and indecision were greatly improved and oculogyric crises were entirely abolished for about three weeks. Blanks were then substituted for the benzedrine and the patient returned in two days with recurrence of all the presenting symptoms, especially the oculogyric crises. Benzedrine was resumed and these symptoms disappeared. A few weeks later a brief omission of scopolamine

with the patient's knowledge, was attended by temporary reappearance of severe eye symptoms.

CASE 22.—Miss C. M., aged 34, unemployed, complained of marked rigidity and slight tremor of all extremities, lack of energy, drowsiness, general asthenia, anorexia and oculogyric crises occurring about two or three times a week. Her symptoms began at the age of 14 years and had become somewhat worse in recent years. There was no history of encephalitis.

When seen, April 24, 1936, her posture was rigid with the head thrust forward, and the arms and legs revealed considerable rigidity of the cog-wheel type on passive movement; she had a masklike facies, a monotonous voice, and increased deep tendon reflexes; otherwise the physical examination was negative. She had taken scopolamine and tincture of stramonium in varying doses from time to time with some benefit. For the past three months she had been taking scopolamine $\frac{1}{400}$ grain three times a day.

Scopolamine was omitted and she was given 10 mg. of benzedrine sulfate twice a day. April 24 she returned feeling worse: "I feel all slowed up; my legs won't work so well." Her appetite also was poorer. However, she did not feel as drowsy as before. During the next two weeks she was given ephedrine sulfate three-eighths grain (0.024 Gm.) three times a day for the first week and three-fourths grain (0.05 Gm.) in the second. At the end of this period she felt a great deal worse in every way and presented all the classic symptoms of advanced Parkinson's disease, including frequent oculogyric crises. May 15 she was given scopolamine $\frac{1}{400}$ grain plus ephedrine three-fourths grain and in a week she returned feeling considerably better, but the eyes still bothered her. Omission of ephedrine had no effect one way or the other for four days following this.

May 28, 10 mg. of benzedrine sulfate twice a day was added to the scopolamine. The improvement in all the symptoms was then striking. She felt stronger, she had much more energy and a better appetite, there was much less rigidity, and tremor had disappeared. Oculogyric crises disappeared completely for three weeks. At this time, June 19, she ran out of benzedrine and was unable to get to the hospital for more for four days; she continued to take scopolamine, however. On the first day on which she took no benzedrine she had three oculogyric crises and her drowsiness, lack of energy, rigidity and anorexia returned. On resumption of the benzedrine with the scopolamine she was at once relieved and had remained so when last seen.

CASE 24.—J. B., an American schoolboy, aged 15 years, had encephalitis at the age of 3. About a year later his mother first noticed rigidity and tremor of the left arm and soon afterward of the left leg. This grew progressively worse and gradually there developed thickness of speech, some difficulty in swallowing, drowsiness, and lack of energy amounting at times to a marked apathy.

He was first seen April 14, 1936, at which time he was thin and malnourished, with a rigid, markedly tremulous and practically useless left arm, a rigid weak left leg which dragged when he walked, masklike facies with mouth hanging open and saliva running out of the corners, monotonous unintelligible speech, impaired postural reflexes, and increased deep tendon reflexes slightly more active on the left. Plantar responses were normal. He had received no treatment for several years.

He was given 10 mg. of benzedrine sulfate twice a day for one week without effect. Ephedrine three-eighths grain and later three-fourths grain three times a day was without apparent effect. May 5 he was given ephedrine three-fourths grain plus scopolamine $\frac{1}{400}$ grain three times a day. When seen May 12, definite improvement had been noted. Tremor and rigidity were diminished, he felt stronger and he could walk, talk and use his left arm better. Omission of ephedrine while he continued the scopolamine did not alter the improvement.

May 21, 5 mg. of benzedrine sulfate three times a day was added to the scopolamine and on his return, June 5, his mother said "He is a different boy; all the neighbors have noticed it. . . . he has so much pep and ambition and seems so cheerful. . . . he still shakes as much but he can use his arm better, and now he can run. . . . Every one can understand what he is saying now." Increasing the dose of benzedrine caused him to have "bad dreams" and lose his appetite, so he was maintained on the original dose and when last seen, July 1, he was getting along very well, in an improved condition.

THE STIMULATING ACTION OF BENZEDRINE SULFATE

A COMPARATIVE STUDY OF THE RESPONSES
OF NORMAL PERSONS AND OF
DEPRESSED PATIENTS

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Benzedrine (beta-phenylisopropylamine) is a chemical compound related in structure and action to ephedrine and epinephrine. Barger and Dale¹ described this drug in 1910 as a member of a group of similar substances to which they gave the name sympathomimetic. The interest of investigators was centered on ephedrine until 1930, when benzedrine first received consideration.

At that time this compound was used in pharmacologic studies conducted on animals by Piness, Miller and Alles,² Hartung and Munch,³ Alles,⁴ Tainter⁵ and Alles and Prinzmetal.⁶ At first their attention was focused on the peripheral effects of the drug, but a marked action on the higher centers of the central nervous system was also noted. About the same time benzedrine was given prominence as an astringent to the human nasal mucosa, chiefly through the work of Bertolet,⁷ Byrne,⁸ Scarano⁹ and Wood.¹⁰ It was observed that overdosage, particularly in the latter part of the day, was prone to result in insomnia.⁶ Other physiologic actions were investigated by Myerson and Ritvo,¹¹ who reported on the relief of spasm of the gastro-intestinal tract by the use of this compound. A pressor action was noted, and this and other physiologic effects were studied by Myerson, Loman and Dameshek.¹²

The profound central stimulation noted in animals was found to be present in the human being by Prinzmetal and Bloomberg,¹³ who reported benzedrine much more effective than ephedrine in treating narcolepsy.

From the Syracuse Psychopathic Hospital and the Department of Psychiatry of the Syracuse University College of Medicine, Dr. Harry A. Steckel, director. A number of the patients were studied at the Manhattan State Hospital and a few at the Hospital for Joint Diseases, New York City.

1. Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amines, *J. Physiol.* **41**: 19, 1910.

2. Piness, George; Miller, Hyman, and Alles, G. A.: Clinical Observations on Phenylaminoethanol Sulfate, *J. A. M. A.* **94**: 790 (March 15) 1930.

3. Hartung, W. H., and Munch, J. C.: Amino Alcohols: VI. The Preparation and Pharmacodynamic Activity of Four Isomeric Phenylpropylamines, *J. Am. Chem. Soc.* **53**: 1875, 1931.

4. Alles, G. A.: The Comparative Physiological Action of dl-Beta-Phenylisopropylamine: I. Pressor Effect and Toxicity, *J. Pharmacol. & Exper. Therap.* **47**: 339 (March) 1933.

5. Tainter, M. L.: Comparative Actions of Sympathomimetic Compounds: Phenyl and Substituted Phenyl Derivatives, Nonphenyl Benz Compounds and Aliphatic Amines, *Arch. internat. de pharmacodyn.* **46**: 192 (Oct. 15) 1933.

6. Alles, G. A., and Prinzmetal, Myron: The Comparative Physiological Actions of the dl-Phenylisopropylamines: II. Bronchial Effect, *J. Pharmacol. & Exper. Therap.* **48**: 161 (June) 1933.

7. Bertolet, J. A.: Benzyl Methyl Carbinamine Carbonate, *M. J. & Rec.* **136**: 75 (July 20) 1932.

8. Byrne, H. V.: The Use of Benzyl-Methyl-Carbinamine-Carbonate in the Treatment of Rhinitis, *New England J. Med.* **209**: 1048 (Nov. 23) 1933.

9. Scarano, J. A.: Rapidity of Shrinkage and Immediate and Secondary Reactions Following Local Applications of Ephedrine and Benzedrine, *M. Rec.* **140**: 602 (Dec. 5) 1934.

10. Wood, E. L.: A New Drug for Treatment of the Eustachian Tube and Middle Ear, *Arch. Otolaryng.* **21**: 588 (May) 1935.

11. Myerson, Abraham, and Ritvo, Max: Benzedrine Sulfate and Its Value in Spasm of the Gastro-Intestinal Tract, *J. A. M. A.* **107**: 24 (July 4) 1936.

12. Myerson, Abraham, Loman, J., and Dameshek, William: Physiologic Effects of Benzedrine and Its Relationship to Other Drugs Affecting the Autonomic Nervous System, *Am. J. M. Sc.* **192**: 550 (Oct.) 1935.

13. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, *J. A. M. A.* **105**: 21 (Dec. 21) 1935.

This was confirmed by Ulrich, Trapp and Vigdoff¹⁴ and by Nathanson.¹⁵ Peoples and Guttman¹⁶ studied the pressor effect and reported concomitant alterations of mood in normal and psychotic individuals. Myerson¹⁷ recently investigated changes in mood and fatigue resulting from this compound in normal and neurotic persons.

Because of this central stimulating action, the possibility of employing this drug in the treatment of psychiatric cases naturally presented itself. One of us (E. D.) reported the result of benzedrine therapy on a series of self-absorbed and normal persons.¹⁸ Nathanson¹⁵ reported definite stimulation of the central nervous system in normal individuals. He also found the drug to have a favorable action in states of persistent exhaustion and ready fatigability. Further investigations of the effect of this compound on depressed psychotic and psychoneurotic patients were indicated and are incorporated in this communication.

METHOD OF INVESTIGATION

The sulfate salt of benzedrine was given to a number of individuals representing each of the following five groups: normal, self-absorbed organic, self-absorbed dementia praecox, depressed manic-depressive, and depressed psychoneurotic. After a period of careful physical and mental observation each of these individuals received daily for from ten days to two weeks an oral dose of benzedrine sulfate, usually from 10 to 30 mg., except in instances in which the drug was prematurely discontinued because of undesirable reactions. The effect of the medication was observed in mood, speech, motor responses and general efficiency. The structure of the psychosis (or neurosis), the total personality, the untoward manifestations and, whenever possible, the subjective sensations were also studied. None of the subjects except two of the normal group were acquainted with the nature of the medication.

EFFECT ON THE NORMAL GROUP

The effect of benzedrine was studied on ten normal individuals. Seven showed elevation of mood, seven overtalkativeness, and ten increase in both motor activity and general efficiency. In addition, five subjects exhibited a state of increased irritation. Three of the ten patients complained of fatigue during the administration of the drug, but several of the subjects who were fatigued prior to receiving it found that this symptom had disappeared. Two of the subjects suffered from lassitude after the medication was discontinued. Two others spontaneously requested more benzedrine after the period of administration was terminated. Other manifestations reported were flushing of the face; generalized feeling of warmth; sweating; greasiness of the skin; sensations of constriction, fullness or aching of the head; increase of the nasal secretion; injection of the conjunctivae; parching of the mouth and the throat; peculiar taste; anorexia; loss of weight; frequency of the bowel and the bladder function; constipation; abdominal cramps; throbbing pulse; consciousness of the heart action; tension of the muscles;

burning of the feet; insomnia; malaise and fatigue; dulness and forgetfulness; confusion, and inability to concentrate.

The following are illustrative cases:

CASE 1 (L. F.).—Blood pressure: before, 100/70; greatest variation after, 100/85. Three hours after the first medication the subject complained of heaviness of the head and a feeling of thirst. One hour later he became very active. He telephoned for flowers to be sent to a sick friend, but shortly after, becoming impatient, he hurried several miles to the florist shop and delivered the gift in person. He said "I wanted action, and I got it!" Later he complained of tension in his muscles and of fatigue. He slept well that night. The second day he noticed a general feeling of depression, increased frequency of urination and increased nasal secretion. The next day he perspired freely and his face became flushed; he was restless, "felt like reeling" and was mentally dull and retarded. On the fourth day he "felt terrible and groggy" and noted that his eyes were "red." On the next day he was "pepped up" and mentally alert. The following day he was annoyed by trivial errors in his work. Throughout the remainder of the period he continued to sleep poorly, made many of the same complaints and toward the end became forgetful.

CASE 2 (W. M.).—Blood pressure: before, 120/80; greatest variation after, 95/75. One hour after taking the medication the subject noticed perspiration and complained of a peculiar taste. Within six hours he noted increased activity and alertness. He called his superior officer on the telephone, insisted on taking an examination for which he was not eligible and became quite agitated during the discussion. He was embarrassed about the incident a few hours later. On the third day he noted exaggerated and prolonged physical and mental alertness. On the fourth day general sluggishness and malaise, clamminess of the skin, vague abdominal cramplike pains, and frequency of urination and defecation were present. On the seventh day he was depressed and complained of headache. After the eighth day he observed, in addition, greasy skin; pulse, at first rapid, then slower; increased physical and mental activity; feeling of warmth; loss of appetite, and decreased requirement of sleep. He noticed a burning sensation in his feet, a throbbing in the parietal region and a dull frontal headache. After the drug was discontinued he felt depressed and fatigued for several days.

CASE 4 (E. R.).—The medication was taken on several days when the subject was suffering from undue fatigue caused by lack of sleep. Within one hour there was a sense of warmth over the whole body and a feeling of well being, and the fatigue appeared to lessen or to disappear. There was a tendency to be overtalkative, a drive to do many things. He undertook many small accumulated tasks that were usually unpleasant and found pleasure in getting them accomplished. He was flowery in his speech, mildly euphoric, oversollicitous in his attitude toward others, and concerned with trifles. He reported that his mind was racing ahead of his physical accomplishment and he planned his program hours in advance, revising it as each hour passed. The feeling of warmth gave way to perspiration, and he noticed some restlessness and inability to sit quietly. There was frequency of urination, and the bowel movements were unusually copious and accompanied by mild abdominal cramps. There was at times a fullness in the head and a tendency to be irritable. At night there was some "let down" in the mood, but no definite fatigue. Sleep was moderately reduced, but the next morning he felt nothing out of the ordinary.

In addition, in other cases, the following observations were reported:

CASE 3 (J. O.).—On the first day the subject felt alert and happy and did not require much sleep. He said that he was more active and seemed stimulative. However, after the third day, except for slight exhilaration, the effects disappeared and he noticed nothing worthy of mention for the rest of the period.

CASE 5 (E. D.).—The first day the subject's sensations were those of jumpiness and irritability, a feeling of being on edge, and a tendency to hair trigger-like reactions and responses. He was impulsive and resentful of criticism. During a telephone conversation with his superior officer in which he was being reprimanded he abruptly hung up. Next day he was markedly overtalkative, facetious and joked about trivialities

14. Ulrich, H.; Trapp, C. E., and Vigdoff, B.: The Treatment of Narcolepsy with Benzedrine Sulfate, *Ann. Int. Med.* 9: 1213 (March) 1936.

15. Nathanson, M. H.: The Central Action of Beta-Aminopropylbenzene (Benzedrine), *J. A. M. A.* 108: 528 (Feb. 13) 1937.

16. Peoples, S. A., and Guttman, E. H.: Hypertension Produced with Benzedrine, *Lancet* 1: 1107 (May 16) 1936.

17. Myerson, Abraham: Effect of Benzedrine Sulfate on Mood and Fatigue in Normal and in Neurotic Persons, *Arch. Neurol. & Psychiat.* 36: 816 (Oct.) 1936.

18. Davidoff, Eugene: A Clinical Study of the Effect of Benzedrine Therapy on Self-Absorbed Patients, *Psychiatric Quart.* 10: 652 (Oct.) 1936.

that were usually unnoticed. On succeeding days these sensations diminished, and after the fifth day no reactions were noted.

CASE 6 (B. I.).—After medication on the first day the subject experienced a feeling of anxiety, felt his pulse throbbing and noted an inability to concentrate. He had a feeling of physical fitness and well being and was mentally stimulated and under tension. On the last day he felt tired.

CASE 7 (C. W.).—About one hour after medication the subject felt an urge to talk, which continued about two hours. The second day he felt sleepy for a short time, then became exhilarated and later irritable and “jumpy.” For the rest of the week he felt only slightly exhilarated, and no marked change was noted.

CASE 8 (P. R.).—After taking benzedrine the subject was forgetful, shaky, irritable, jittery, restless and tense. On the last day he had a feeling of mental and physical stimulation but complained that he could not relax.

Some of these effects on the normal person have been previously mentioned by one of us.¹⁵ Myerson¹⁷ reported that normal individuals suffering from mild fatigue with small doses of benzedrine experienced immediate relief of a pleasant sort and became calm. With 30 mg. several of the patients felt “jittery.” Nathanson¹⁵ stated that most normal individuals after a dose of from 20 to 30 mg. of benzedrine showed quite regularly one or more of the following effects: eupho-

TABLE 1.—Effect of Benzedrine Sulfate:
Psycho-neurotic Group

Case	Constitution	Elevation of Mood	Talkativeness	Motor Activity	General Efficiency
1. I. W.	Pyknie (neurasthenia)....	+	Slight	+	+
2. F. H.	Asthenic (hysteria).....	+	—	Slight	—
3. S. G.	Asthenic (hysteria).....	Slight	—	+	Slight
4. P. D.	Asthenic (hysteria).....	—	—	—	—
5. T. B.	Dysplastie (neurasthenia)...	—	+	—	—
6. Z. S.	Asthenic (neurasthenia)...	—	Slight	—	—
7. A. B.	Dysplastie (hysteria).....	—	Slight	—	—
8. M. S.	Pyknie (hysteria).....	—	—	Slight	—
9. H. C.	Pyknie (neurasthenia)....	—	—	—	—
10. H. C.	Asthenic (neurasthenia)...	—	—	—	—
Positive results.....		3	6	4	2

* Cases studied at the Syracuse Psychopathic Hospital.
† Cases studied at the clinic of the Hospital for Joint Diseases, New York.

ria, a feeling of exhilaration, lessening of fatigue, and increased energy and capacity for work and talkativeness.

EFFECT ON THE ORGANIC GROUP

The effect of benzedrine was studied on ten self-absorbed individuals in the organic group. Five evidenced elevation of mood, seven overtalkativeness, eight increase in motor activity and eight increase in general efficiency. In addition, three showed a state of increased irritation. There was no change in the total personality or the structure of the psychosis in any of the cases. The most consistent improvement was noted in the alcoholic and in the traumatic cases. In those patients in whom any effects were noted the subjective sensations appeared to follow the pattern of the normal group, but in addition confusion and unsteadiness of gait were observed. Several complained of fatigue during the administration of the drug. Of this group, eight cases studied by one of us at the Manhattan State Hospital have been reported in greater detail elsewhere.¹⁸

Of the cases showing improvement, the following is representative:

CASE 4 (J. W., alcoholic).—Blood pressure: before, 110/70; greatest variation after, 190/90. One hour after taking the drug the patient felt considerable motor and mental acceleration and stated that he felt “good.” There was a marked increase in talkativeness. His hands felt cold and clammy. At the end

of two hours he was confused and unsteady on his feet but insisted that he was feeling “very strong.” After three hours he was restless, talkative, whistled constantly, appeared very cheerful and for the first time since his admission he asked to go on the porch. He continued to be cheerful and to pace about for the rest of the day. He stated that he never felt better. He improved rapidly and was soon discharged from the hospital.

Of the cases that were adversely affected by the medication, the following are typical:

CASE 10 (R. L., parietic).—Blood pressure: before, 160/100; greatest variation after, 160/120. The patient showed no improvement but he became more depressed, less efficient and very sluggish and fatigued. The drug was discontinued prematurely because of the rise in the diastolic blood pressure.

CASE 9 (J. O., a cardiac patient).—Blood pressure: before, 170/120; greatest variation after, 110/65. The patient experienced a rapid fall in blood pressure, but was otherwise unaffected.

EFFECT ON THE DEMENTIA PRAECOX GROUP

The effect of benzedrine was studied on twenty-five self-absorbed dementia praecox patients. Four manifested elevation of mood, seven overtalkativeness, eleven increased motor activity and nine increased general efficiency. Five showed a state of increased irritation. Because of the mental state of the patients it was impossible to evaluate changes in fatigue properly. There was no change in the total personality or in the structure of the psychosis in any of the cases. Three, diagnosed as catatonic, were classified as improved and were paroled. Twenty-two of these cases, studied at the Manhattan State Hospital, have been reported in greater detail in a previous paper.¹⁸

The following cases are illustrative:

CASE 1 (J. G.).—Blood pressure: before, 100/60; greatest variation after, 130/100. The case was of the self-absorbed catatonic group of recent onset. Following the medication the patient began to initiate conversation and later discussed matters freely with the physician. He became a very efficient worker and was much more active. While his affect was still somewhat rigid, he showed an improvement in this phase. He smiled and at times indulged in humorous conversation.

CASE 13 (W. T.).—Blood pressure: before, 108/84; greatest variation after, 110/90. The patient seemed in no way affected throughout the entire period of administration.

Myerson¹⁷ referred briefly to eighteen patients suffering from dementia praecox who were treated for a considerable period with this drug. He concluded that benzedrine had no effect in catatonic states and none, as far as could be seen, in hebephrenia.

EFFECT ON THE MANIC DEPRESSIVE GROUP

The effect of benzedrine was studied on ten depressed manic depressive patients. Only two displayed elevation of mood, six overtalkativeness, six increased motor activity and six improved general efficiency. A state of increased irritation was observed in six. Several of the patients complained of fatigue during the administration. There was no change in the total personality or in the structure of the psychosis. The subjective statements were in no way strikingly different from those of the normal group.

Of the cases that improved the following is typical:

CASE 2 (N. W.).—Blood pressure: before, 106/62; greatest variation after, 120/80. The patient became talkative within an hour after taking the drug. Three hours later he was “feeling much better” but complained of fatigue. He did not sleep well. The second day he appeared depressed three hours after taking the drug, but from six to eight hours later he stated that he felt “good” and he slept well that night. On the fourth day he remarked that he was very happy, cheerful and alert.

The urinary output was diminished and the bowels were quite constipated. On the sixth day he was jovial. By the tenth day he was singing; he stated that he felt "great" and appeared to have reached approximately his normal state. He was quite active. On the twelfth day he was depressed shortly after taking the drug but toward evening appeared to be in better spirits. On the fourteenth day he was very talkative but complained of depression and a severe headache. Throughout the period he worked more efficiently in the ward. In general his mood appeared less affected than his speech response, motor activity and general efficiency.

The following is an example of the cases in which there was failure to improve:

CASE 8 (J. F.).—Blood pressure: before, 98/62; greatest variation after, 148/85. After taking 30 mg. of the drug the patient evinced no change. At a later date even though a massive dose of 70 mg. was administered, sufficient to raise the systolic blood pressure 50 points, there were no deviations in mood, speech, motor activity or general efficiency.

An alarming untoward effect was noted in one case:

CASE 9 (B. M.).—The patient became more irritated, more antagonistic, and more hopeless in his outlook. He sat at home and brooded. On the fifth night he attempted suicide by taking an overdose of barbiturate sedative and was in coma for some hours.

EFFECT ON THE PSYCHONEUROTIC GROUP

The summary in table 1 on the effects of benzedrine on ten depressed psychoneurotic patients reveals that

and became very talkative. The next day he complained of "drawing" sensations in the head and eyes and blurred vision. He experienced the same symptoms on the third and fourth days but became more cheerful. The amount and frequency of defecation and urination increased. The fifth day he appeared delirious for a time and complained of "water ebbing up and down his body to his neck." These sensations soon disappeared. The next day he could not remember anything that had happened and was confused. On the seventh day he was improved and became jovial and talkative, although the motor activity increased only slightly, and there appeared to be no change in his general efficiency. Toward the end he was occasionally drowsy. He complained of dizziness, even after the drug was discontinued.

Of the psychoneurotic cases that were unaffected the following is typical:

CASE 9 (H. C.).—Blood pressure: before, 140/85; greatest variation after, 152/98. After the medication there was no change in the patient's status, although she stated that she had "faith in the pills." The next day she was much discouraged because they had "failed to work." Her face was flushed; she ate poorly, felt fatigued and complained, as previously, about the bowels and stomach. The patient insisted that she would "never be able to get around again." Later she became very irritable and tearful at the slightest provocation. She complained of a "drawing" sensation in the head. On the third day she felt a little better than previously, but shortly declared: "the treatment is a fake just like everything else." She was then placed on placebo medication. Several hours later she was feeling much better but soon became depressed

TABLE 2.—Effect of Benzedrine Sulfate: Comparison of Self-Absorbed or Depressed Cases with Normal Controls

Type of Case	Number of Cases	Elevation of Mood				Talkativeness				Motor Activity				General Efficiency			
		Increased		Unchanged		Increased		Unchanged		Increased		Unchanged		Increased		Unchanged	
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
		Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Organic.....	10	5	50	5	50	7	70	3	30	8	80	2	20	8	80	2	20
Dementia praecox.....	25	4	16	21	84	7	28	18	72	11	44	14	56	9	36	16	64
Psychoneurotic.....	10	3	30	7	70	6	60	4	40	4	40	6	60	2	20	8	80
Manic depressive....	10	2	20	8	80	6	60	4	40	6	60	4	40	6	60	4	40
Total.....	55	14	25.5	41	74.5	26	47.3	29	52.7	29	52.7	26	47.3	25	45.5	30	54.5
Normal.....	10	7	70	3	30	7	70	3	30	10	100	0	0	10	100	0	0

not one of the cases showed improvement in all spheres. Only three showed elevation of mood, six increased talkativeness and four accelerated motor activity. The fact that only two cases showed improvement in general efficiency is interesting. Five of the cases showed a state of increased irritation. The total personality was unaffected in every case, and the underlying psychoneurotic tendency remained entirely unchanged. Many of the effects were recorded as slight, but one case showed a severe untoward reaction. The subjective statements of the patients followed the pattern of the normal group.

The following is an example of an improved case in this group, although there was a severe untoward reaction before the improvement became evident:

CASE 2 (F. H.).—Blood pressure: before, 108/60; greatest variation after, 138/90. One hour after taking the benzedrine the patient complained of feeling dizzy. Within four hours he became perturbed and agitated. He was unsteady on his feet and appeared to have a marked reaction, during which his eyes became glassy, his face was flushed, he perspired freely, knee jerks became hyperactive and he voluntarily went to bed. Motor activity was much diminished and he fell asleep for about an hour. Later his face was pale, and there was cyanosis of the lips and fingers. The next morning the initial pulse rate of 86 had decreased to 56. At the same time the systolic blood pressure was only 4 points above the original level. Within three hours he complained of fatigue, and the pulse went to 104, while the blood pressure was 126 systolic, 68 diastolic. He again experienced these reactions and voluntarily went to sleep. However, several hours later he felt much better

and discouraged again and asked if there was any one else in the hospital as sick as she. Her reactions on placebo medication were no different than they had been on benzedrine or, indeed, than they had been in the beginning. This case illustrates the difficulty in evaluating the effect of medication, particularly in the psychoneurotic group of patients.

Myerson¹⁷ reported that benzedrine sulfate acted as an ameliorative influence in certain cases of neurosis associated with depression, fatigue and anhedonia. He pointed out that it was not in any sense curative, and its effects were not permanent, but stated that it helped to dissipate the morning apathy and depression. Nathanson¹⁵ asserted that the drug acted favorably in persons with a persistent tired feeling and a ready fatigability, whom he included under the diagnosis of "nervous exhaustion."

COMPARISON OF THE NORMAL AND THE ABNORMAL GROUPS

Table 2, containing a summary of the reactions of the various groups to benzedrine sulfate medication, indicates that the normal group had the largest percentage of response in every sphere. The organic group was next and surpassed every other division of the abnormal groups in each of the reaction phases. The scattering of the reactions, the lack of consistency and the indifferent response in efficiency in the psychoneurotic group is also worthy of comment. The table shows that elevation of the mood was the least marked reaction in every one of the groups, including the normal.

COMMENT

It is difficult to state whether the manifestations observed following the administration of benzedrine sulfate were due to the action of the drug itself, to the variable course of the mental illness in question or to the psychotherapeutic effort entailed in the procedure. As far as possible, consideration must be given this source of error in the interpretation of the results. More extensive investigation is necessary before final conclusions can be reached.

A discussion of the effects noted follows:

1. *Mood*.—Of all the reactions tabulated, elevation of mood was the least frequent occurrence as far as the abnormal cases were concerned. This alteration occurred in fourteen of these cases, or 25.5 per cent. It is interesting to note, however, that 70 per cent of the normal group showed this reaction. In interpreting these responses it must be emphasized that increased motor or increased speech activity does not necessarily imply elevation of the mood. The only other significant variation of the mood was a state of disgruntled irritation, which appeared in twenty-four of the cases, including five of the normal group. Depression was produced or aggravated in some individuals, particularly those who complained of excessive fatigue. Elevation of mood occurred, in general, most frequently in the normal and in the organic groups.

2. *Talkativeness*.—This reaction was present more frequently than elevation of mood but less often than increased motor activity in the abnormal groups. Loquaciousness was observed in at least 60 per cent of the abnormal cases, with the exception of the dementia praecox group, in which only 28 per cent were affected. Seventy per cent of the normal group manifested increased speech activity. None of the patients evinced a decreased desire to talk.

3. *Motor Activity*.—Hyperactivity was the most frequent reaction noted in the abnormal cases. All of the normal group and 80 per cent of the organic cases showed increased motor activity, while the dementia praecox and the psychoneurotic groups were considerably less affected. Decreased motor activity was observed in some, particularly in those who complained of fatigue and who were more depressed, drowsy and sleepy.

4. *General Efficiency*.—As far as the abnormal groups were concerned improvement in general efficiency approximated increased talkativeness in frequency of occurrence. The normal and the organic cases again presented the most constant response. All the normal cases and 80 per cent of the organic improved. The lack of improvement in the psychoneurotic group is in striking contrast to the normal.

5. *Comparison of Groups*.—In general, the most marked response in all the various phases studied was found in the normal group. The organic cases, particularly the alcoholic and the post-traumatic, closely paralleled the normal.

6. *Structure of Psychosis (or Neurosis) and Total Personality*.—None of the abnormal cases showed any noteworthy alteration in the structure of the psychosis; nor was the central neurotic tendency or the total personality reaction modified by the benzedrine therapy.

7. *Fatigue*.—Many of the patients who responded to the drug noticed amelioration of fatigue, and this was particularly true of those who were feeling tired prior to the administration of the benzedrine. Myerson¹⁷

and Nathanson¹⁸ report similar responses in fatigued individuals. A number of our patients, however, who did not have this complaint prior to medication noticed sensations of fatigue from three to six hours after taking the drug. Another group showed, for one or two days, a fatigue on awakening that appeared rather consistently about four or five days after the benzedrine was started. After the medication had been entirely discontinued, several of the patients complained for a day or two of lassitude. It must be borne in mind, therefore, that benzedrine, instead of relieving the malaise for which it is prescribed, occasionally may induce additional fatigue.

8. *Other Central Effects*.—In addition to the alterations in mood, speech and motor activity, general efficiency and states of fatigue mentioned before, benzedrine sulfate also produced other effects on the central nervous system. Among these should be included insomnia and decrease of sleep requirement, alertness, increase in accessibility, increase in subjective verbalization and willingness to discuss personal problems, increase in meticulousness, resentfulness, impulsiveness, impatience, anxiety, surliness, increase in self assertiveness approaching aggressiveness in some, facetiousness, increase in spontaneity, agitation, drowsiness, inability to concentrate, dulness, forgetfulness, confusion and transitory delirium, tactile hallucinations, malaise, dizziness and an increase in drive or urge. A very commonly occurring manifestation was an irritable restlessness, which was often annoying.

9. *Peripheral Effects*.—Most of the cases showed some peripheral effects. Among them should be mentioned flushing of the face, urticaria and pustular eruption of the skin, generalized sensation of warmth, sweating, coldness and clamminess of the hands, greasiness of the skin, sensations of constriction, fullness or aching of the head, increase or decrease of the nasal secretion, injection of the conjunctivae, dilatation of the pupil, parching of the mouth and throat, peculiar taste, anorexia, nausea, loss of weight, abdominal cramps, frequency of bowel and bladder function, constipation, decrease in urinary output, throbbing pulse, consciousness of heart action, tension of the muscles and generalized tremulousness, burning of the feet, and other vasomotor effects such as dermatographia, pallor and cyanosis.

10. *Physiologic Reactions*.—Physiologic reactions in some of the cases have been carefully studied and will be reported in detail in another paper. The results were variable, uncertain, unpredictable, and at times paradoxical. As Rothlin¹⁹ has pointed out, this might be explained by the fact that disturbances in the vegetative nervous system almost invariably involve parasympathetic as well as sympathetic stimulation. The observations on the physiologic action of benzedrine sulfate are summarized briefly as follows:

A. Skin, Mucous Membrane and Vasomotor System: most of the reactions mentioned under the peripheral effects.

B. Bowel and Bladder Function: increase in frequency of bowel action; increase in amount of stool; constipation; abdominal cramps; increase in frequency of bladder action; increase or decrease in daily urinary output.

C. Body Weight: decrease in most subjects.

D. Blood Pressure and Pulse: increase or decrease in systolic and diastolic blood pressure levels; increase or decrease in pulse rate.

E. Respiration: apparently unaffected.

19. Rothlin, cited by Jores, A., and Goyert, C.: The Treatment of Vegetative Excitation, *Clin. Med. & Surg.* 42: 498, 1936.

F. Temperature: slight increase or decrease.

G. Basal Metabolic Rate: increase or decrease, no consistent variation.

H. Blood Sugar and Nonprotein Nitrogen: apparently unaffected.

I. Knee Jerks: occasional increase.

J. Cellular Elements of the Blood: no striking variation, except for a moderate increase in one case.

Our observations to date seem to be in accord with the statement of Sollmann²⁰ on the variable effects of the other sympathomimetic drugs on urinary output. We have not found that the alterations in the blood pressure can be used as an index of the course and intensity of intoxication with benzedrine, as mentioned by Peoples and Guttman.¹⁶ The striking erythrocytosis and leukocytosis noted in some cases by Myerson and his associates¹² have not been observed, although one case showed a moderate increase. As far as the intensity of all reactions could be evaluated, the asthenic individuals appeared to be more sensitive to benzedrine than the pyknic types.

11. *Untoward Effects.*—A number of the reactions to benzedrine must be classified as untoward, either because they involved unpleasant subjective sensations or else because they rendered the patient objectively less adaptable. Such reactions were observed in the central, peripheral and physiologic spheres and have been mentioned before under those headings. Subjectively, the following central effects were particularly annoying: a feeling of undue fatigue or malaise, insomnia, dizziness, increase in depression and hopelessness, a feeling of anxiety and a disturbing sensation of restlessness or tension. Some of the patients could not define their feelings satisfactorily yet feared the drug because of the uncomfortable sensations and even refused to continue taking it. Objectively, impulsiveness, aggressiveness, and assaultiveness, inability to concentrate, dulness and forgetfulness, confusion and transitory delirium proved therapeutic obstacles. This was especially true when several of these manifestations occurred in combination, as in the frequent appearance of a state of irritated restlessness. In a few cases of dementia praecox, usually with a history of previous catatonic excitement, the occurrence of overactivity, impulsiveness, surliness and boisterousness made the patients more difficult to manage. One of the manic depressive patients became more depressed and impulsively attempted suicide. In a psychoneurotic patient transitory delirium developed with hallucinations. A dementia praecox patient made a homicidal attempt on his wife shortly after the termination of the benzedrine medication, but the causal relationship is not definitely established.

Patients also expressed annoyance at some of the peripheral effects, which have been listed in detail under that heading. However, except for tremulousness, none of them interfered to any degree with the management of the patients. There were a number of untoward occurrences associated with the physiologic reactions. The vexation of patients at changes in the skin, mucous membranes, vasomotor system and bowel function has already been mentioned. The loss of weight was a source of concern to a few. Objectively the appearance of an excessive elevation or a paradoxical fall in the blood pressure or in the pulse rate was viewed with considerable apprehension, particularly when vasomotor phenomena were present and in several instances neces-

sitated the discontinuance of the benzedrine. One of the psychoneurotic patients had recurring episodes of vasomotor and emotional instability, which were severe and at first rather alarming. Another patient with marked vasomotor instability exhibited a rise of the systolic blood pressure of over 100 points following the ingestion of 20 mg. of benzedrine sulfate.

The action of benzedrine can usually be terminated by appropriate doses of barbiturates. The use of ergotamine tartrate, recently shown to be generally antagonistic to epinephrine,²¹ should be borne in mind, and this drug should be investigated as a possible antagonist to benzedrine sulfate.

Untoward reactions have been reported by other investigators. Prinzmetal and Bloomberg¹³ noted insomnia in several of the cases of narcolepsy but found this easily corrected by adjusting the dosage. They also reported patients becoming irritable and irascible when the dosage was carried too high. Myerson¹⁷ mentioned two cases in which the drug had to be discontinued because of the appearance of noisy, threatening and uncontrollable behavior. Nathanson¹⁵ had to discontinue the drug in three patients, two because of insomnia and one because of severe palpitation.

In view of these untoward and disturbing reactions, it must be pointed out that benzedrine sulfate can be more safely prescribed when the patient is under close observation in a hospital. Its use in outpatient practice should be undertaken with considerable caution and only under favorable circumstances.

12. *Habit Formation.*—Most of the patients affected by the drug who experienced few or none of the untoward effects seemed to enjoy the sensations produced, and several requested more medication when the period of study was ended. One compared the sensation to that of a mild state of alcoholic intoxication, and those who had a liking for spirituous liquors particularly relished the drug. Without further study the question of habit formation cannot be satisfactorily answered, but it would seem that there is sufficient evidence to warn against promiscuous use. As none of the patients mentioned in the present report received the drug for more than a few weeks, no observations could be made on the possibility of addiction, development of tolerance or late untoward effects from prolonged use. In this connection, however, Prinzmetal and Bloomberg¹³ have given the medication daily for fourteen months, Myerson¹⁷ for six months and Nathanson¹⁵ for four months without incident. The last named suggested a possible harmful effect in prolonged administration from the excessive expenditure of energy beyond the capacity of some individuals.

13. *Dosage.*—In view of the disturbing nature of some of the untoward reactions, it is always advisable to start administering benzedrine in small doses, as Prinzmetal and Bloomberg¹³ have suggested. This will also aid in detecting any idiosyncrasy. Most of our patients received from 10 to 30 mg. of the drug daily. Some of the unresponsive patients appeared equally unaffected with doses of from 20 to 70 mg. Prinzmetal and Bloomberg¹³ gave narcoleptic patients as much as 105 mg. daily with only moderately unpleasant reactions. One patient in our series received 200 mg. in one day without exhibiting a much greater reaction than could be obtained with 20 mg. The reactions appeared from one to three hours after the administra-

20. Sollmann, Torald: *A Manual of Pharmacology*, Philadelphia, W. B. Saunders Company, 1936, pp. 405-432.

21. Baber, E. A., and Tietz, Esther B.: The Effect of Ergotamine Tartrate on the Behavior of Psychotic Patients, *J. Med.* 17: 551 (Jan.) 1937.

tion of the drug and persisted from three to eight or nine hours. It was found possible in one patient to maintain the reaction at its height for twelve hours by repeating 20 mg. of benzedrine every two hours. Our observations gave insufficient data to warrant a discussion of the problems of optimal dosage, cumulative effect and increased tolerance; however, many of our patients experienced a maximal effect within one week.

14. *Contraindications.*—It is agreed by all investigators that the presence of the following are definite contraindications to the administration of benzedrine sulfate: (a) hypertension, (b) coronary artery disease and (c) a state of manic excitement. It has been our observation that this drug should not be used in most forms of cardiac and vascular disease.

In addition to these definite contraindications there are a number of circumstances under which benzedrine should be administered with considerable caution, because of possible harmful effects. We include among these (a) idiosyncrasy to small doses of the drug, or the early appearance of alarming untoward effects; (b) more severe forms of vasomotor instability, (c) wide daily fluctuations in the blood pressure or in the pulse rate, (d) tendency to physical overactivity, as observed in the agitated depressions; (e) history of previous excitement, as in catatonic dementia praecox, epilepsy and mental deficiency; (f) history of homicidal or suicidal tendencies; (g) history of convulsive seizures; (h) anorexia; (i) insomnia, and (j) malnutrition and states of exhaustion, debility and lowered bodily resistance. The apparent increased sensitivity of asthenic individuals should be considered. In severe depressions the possibility of suicide must always be kept in mind. Habituation to the drug cannot as yet be entirely dismissed.

15. *Indications.* — Benzedrine has been widely accepted as a local astringent.²² As an internal medication it has been best established in the treatment of narcolepsy.²³ It has also been suggested in overcoming persistent states of fatigue and "nervous exhaustion";²⁴ in postencephalitic parkinsonism;²⁵ in conditions in which it is desirable to produce an elevation of the blood pressure;¹² in relieving gastro-intestinal spasm;¹¹ in combating overdoses of barbiturates;¹² in preparing individuals for periods of excessive physical or mental exertion;¹⁵ as an adjuvant to the action of atropine, stramonium and scopolamine²⁶ and in relieving attacks of migraine.¹⁵ These suggestions need further substantiation.

SUMMARY

As we have previously mentioned, more extensive investigation of the action of benzedrine sulfate is necessary before final conclusions can be reached. However, our experience, limited as it has been to the sixty-five cases presented in this communication, prompts us to suggest the following:

A. Benzedrine sulfate is apparently more stimulating to normal persons than to depressed or self-absorbed patients.

B. It is more effective in increasing the motor activity, the speech activity and the general efficiency than in elevating the mood.

C. It is of more value in the organic depressions, particularly the alcoholic, than in those of psychogenic origin.

D. It may be of value in differentiating the states of depression due to alcohol alone, which are usually rapidly dissipated by the drug, from the states of alcoholic depression superimposed on and masking depressions of psychogenic origin, which do not respond readily to the drug.

E. It may render depressed or self-absorbed patients more accessible to investigation or psychotherapy.

F. It may be of use in reducing weight.

G. The beneficial effects of benzedrine sulfate therapy may be counterbalanced by untoward reactions occurring in the course of the administration. This drug should be employed with caution and under favorable circumstances.

H. Are there any benefits to be gained from prolonged administration of benzedrine sulfate that cannot be obtained from a brief exhibition with adequate dosage?

I. Benzedrine sulfate apparently may accelerate the rate of improvement in cases in which ultimate recovery is likely to be the inevitable result.

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ADENOCARCINOMA OF THE RECTUM WITH UNUSUAL SITES OF METASTASES

REPORT OF TWO CASES

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AND

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HINES, ILL.

Adenocarcinoma of the rectum seldom metastasizes or invades the penis by direct extension. A careful review of the literature has revealed only two similar cases. In 1933 Niewiesch¹ reported a case of adenocarcinoma of the rectum in a man aged 69. One and one-half years following resection of the rectum he returned because of priapism. No recurrence was found in the resected area, but the corpora cavernosa were rigid as the result of invasion by tumor tissue. Amputation of the penis was done, but the patient died ten months later from metastases.

Matheson² in 1935 reported a case of adenocarcinoma of the rectum in a man, aged 72, with secondary carcinomatous deposits in the penis. The lesions were nodular and located on the dorsal surface of the penis. One month after his admission the deposits compressed the urethra, causing complete repression of urine. Necropsy and sections reviewed for histologic study confirmed the diagnosis of an adenocarcinoma of the penis having the same histologic structure as the rectal lesion. Priapism was not mentioned.

The case to be reported (case 1) is the sixteenth recorded in the literature of secondary involvement of

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1. Niewiesch, H.: Priapismus bei primären und metastatischen Geschwulsten in den Schwellkörpern des Penis, Deutsche Ztschr. f. Chirurg. 241: 94-103, 1933.

2. Matheson, N. M.: Secondary Carcinomatous Deposits in Penis of Priapism: Retention of Urine, Urol. & Cutan. Rev. 39: 566-567 (Aug.) 1935.

22. Bertollet.⁷ Byrne.⁸ Scarano.⁹ Wood.¹⁰

23. Prinzmetal and Bloomberg.¹¹ Ulrich, Trapp and Vigdoff.¹⁴

24. Myerson.¹⁵ Nathanson.¹⁶

25. Solomon, P. and Prinzmetal. Myron: The Use of Benzedrine in Postencephalitic Parkinsonism, Boston Soc. Psychiat. & Neurol., March 1936.

26. Myerson, Leman and Dameshek.¹² Davidoff.¹³

the penis by carcinomatous tissue. Frontz and Alyea,³ Cowie,⁴ Paglieri and Schiappapietra,⁵ Guibal⁶ and Martin-Laval⁷ reported cases with the prostate as the primary site; Kessell,⁸ Neumann⁴ and Paschkis⁹ the bladder; Bergeret⁴ and Garofalo¹⁰ the testicle; Gadrat¹¹ the liver and Begg¹² and Reinecke⁴ the kidney. As previously mentioned, in the cases reported by Niewiesch¹ and Matheson² the rectum was the primary site. Four of the cases reviewed by Niewiesch¹ gave a very definite history of priapism. Priapism was present in the cases reported by Kessell⁸ and Niewiesch.¹

When priapism is seen, it is well to keep in mind the possibility of its being caused by metastasis or that it is the result of invasion from tumors situated in neighboring structures. The priapism may be present before one has evidence of the location of the primary lesion.

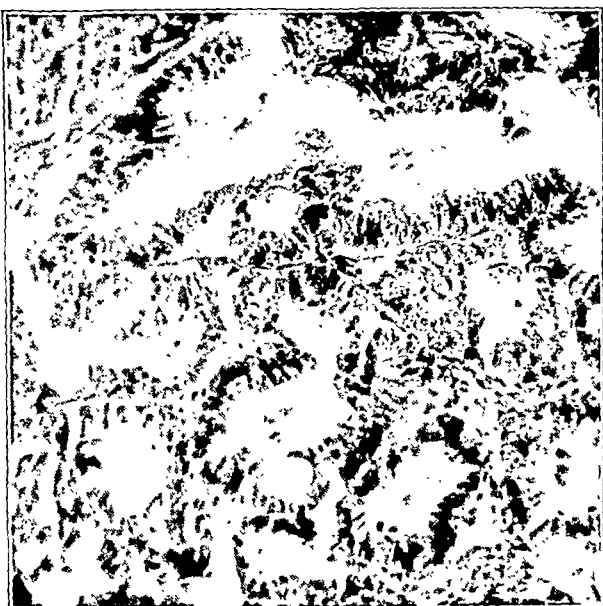


Fig. 1 (case 1).—Section of biopsy from rectum showing typical adenocarcinomatous structure.

The priapism is not caused entirely by the replacement of the corpus cavernosum by tumor tissue but also by the stasis and thrombosis of the sinuses in the corpus cavernosum not directly involved in the tumor process. There is no mention in the literature of a case in which secondary carcinomatous involvement of the corpus spongiosum urethrae has occurred.

It is remarkable that metastases or direct extension of tumor cells does not occur more often to the penis

from the rectal region because of the close proximity to that structure. The region between the rectum and the penis is devoid of all lymphatics that may drain the rectum anteriorly to the penis, as far as is known at the present time. Anatomically or physiologically,



Fig. 2 (case 1).—Section of biopsy from the penis showing identical structure as rectal lesion.

metastases from the rectum to the penis cannot be explained on a vascular or lymphatic basis. The only logical explanation is that the secondary involvement resulted from direct extension into the corpus cavernosum by way of the ischiorectal fossa and then through the junction of the deep and superficial triangular

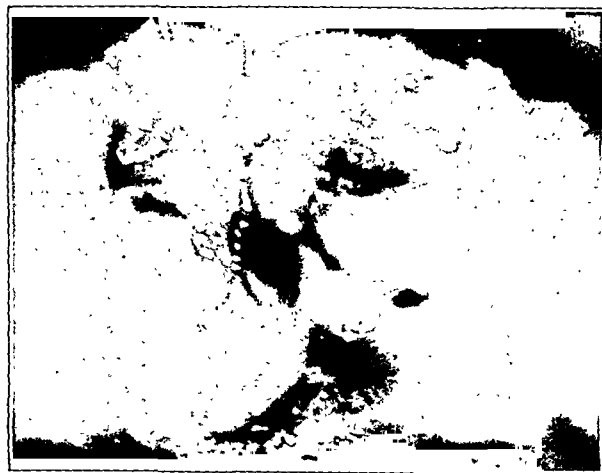


Fig. 3 (case 1).—Lesion in rectum as seen from within the rectum. Almost complete obstruction has taken place.

ligaments with the fascia of Colles into the superficial perineal space. This is the course of least resistance, and the cells do not spread against fascial planes. It is considered unlikely that it passed through the urogenital diaphragm, for in this region such extension would be against fascial planes. The fascia of the urogenital diaphragm is thin, however; and could be involved. In

3. Frontz, W. A., and Alyea, E. P.: Priapism of Unusual Etiology. *J. Urol.* 20: 135-141 (July) 1928.

4. Cited by Niewiesch,¹ p. 102.

5. Paglieri, L., and Schiappapietra, T.: Adenocarcinoma de la próstata con metástasis en cuerpos cavernosos. *Rev. de especialid.* 2: 774-781 (Nov.) 1928.

6. Guibal, P.: Deux cas de métastase cancéreuse rapide et massive dans l'appareil génital érectile d'un homme et d'une femme après curiethérapie. *Bull. et mém. soc. nat. de chir.* 55: 665-672 (May 18) 1929.

7. Martin-Laval: Cancer des corps cavernaux, secondaire à un cancer de la prostate. *J. d'uro.* 32: 347-348, 1931.

8. Kessell, J. S.: An Interesting Case of Priapism Due to Multiple Secondary Carcinomatous Nodules in the Corpora Cavernosa. *J. Urol.* 32: 213-216 (Aug.) 1934.

9. Paschkis, R.: Papillary Carcinoma of the Bladder with Metastases to the Penis Corpus Cavernosum. *Ztschr. f. urol. Chir.* 26: 154, 1929.

10. Garofalo, F.: Priapismo da tumore metastatico dei corpi cavernosi del pene. *Arch. ital. di dermat., sif.* 7: 20-32 (June) 1931.

11. Gadrat, J.: Faux priapisme déterminé par une métastase cancéreuse d'un cancer primitif du foie. *Ann. de dermat. et syph.* 1: 621-624 (June) 1930.

12. Begg, R. C.: Persistent Priapism Due to Secondary Carcinoma in Corpora Cavernosa. *Brit. M. J.* 2: 10 (July 7) 1928.

the event that the corpus spongiosum is involved, the extension would probably have to take place through the urogenital diaphragm.

REPORT OF CASES

CASE 1.—History.—A white man, aged 62, a farmer, was admitted to the Edward Hines Jr. Hospital, Jan. 29, 1936, stating that about fourteen months previous to admission he began to have frequent attacks of diarrhea consisting largely of blood and mucus. Shortly after the onset of the diarrhea he was examined by a private physician and was told that the rectum was essentially normal. Shortly afterward he began



Fig. 4 (case 1).—Several small nodules can be seen on the glans penis. Healed area on the dorsum represents the site from which biopsy was taken.

to have cramping pains in the perineal region. The stools had decreased in size until they were about the breadth of a pencil. Two months before his admission he first noticed several small hard nodules that appeared along the shaft of the penis. Since that time new nodules had appeared and the original nodules had increased in size. At times he had a dull aching type of pain associated with the penile lesions. During the past year he had lost 40 pounds (18 Kg.) and had become quite weak.

The patient had had the usual childhood diseases and no operations. His general health had always been good until the onset of the present illness. He fell and injured his back in 1926 but he had fully recovered from this at the time of examination.

The family history was irrelevant. There was no history of cancer, diabetes, tuberculosis or cardiac disease.

The patient had always been a farmer. He used alcohol and tobacco in moderation. He stated that he had had neither syphilis nor gonorrhea.

Physical Examination.—The patient was poorly nourished but fairly well developed. He was lying in bed and appeared markedly anemic and in a weakened state. The eyes, ears and nose were normal. The teeth were in fairly good condition. The tongue was coated. The tonsils and pharynx were normal. There were no abnormal pulsations in the neck and there was no cervical adenopathy. The thyroid gland was not remarkable. The trachea was in the midline. The heart and lungs were normal on clinical examination. The blood pressure was 100 systolic, 70 diastolic; the pulse 90; the temperature 98.6 F. There were no palpable masses, fluid, rigidity or tenderness in the abdomen and no scars. The spleen and liver were not palpable. No evidence of hernia was noted. There was no supraclavicular, infraclavicular, axillary, epitrochlear or inguinal adenopathy. The extremities were normal. Proctoscopic examination revealed an intrarectal mass starting at a point 6 cm. above the anus and extending to a distance 11 cm. above the anus. The mass circumscribed the bowel and was ulcerated in areas, especially the left half. The mass was firmly fixed anteriorly. There were several hard nodules located along the shaft of the penis and on the glans penis. The nodules varied in size from about 1 cm. to 2 cm. in diameter.

X-ray examination of the chest revealed an old inflammatory process, most probably the result of tuberculosis (inactive). Urinalysis was negative. The Wassermann and Kahn reactions were negative. Red blood cells numbered 3,560,000, leukocytes 11,600 with 86 per cent polymorphonuclears, and hemoglobin was 55 per cent. Fluoroscopy with a barium sulfate enema

revealed a large filling defect in the region of the rectal ampulla extending for a distance of about 10 cm. to the rectosigmoid region. Roentgenograms of the bones of the dorsolumbar spines, hips and sacro-iliac joints revealed evidence of an inflammatory process involving these structures. Calcification was present in the abdominal aorta.

The diagnosis of a biopsy specimen removed from the rectum was adenocarcinoma. Tissue removed from a nodule in the corpus cavernosum revealed an adenocarcinoma arising from the rectal mucosa.

Course in Hospital.—It was considered advisable for the patient to have a colostomy because of the very narrow lumen. The patient, however, refused. He was given a course of high voltage roentgen therapy resulting in practically no change in his condition. During the last few days of his illness the patient complained of priapism caused by the nodules of tumor tissue in the corpora cavernosa. He died April 16. All efforts to obtain a necropsy were futile.

There is no record of any case in the literature presenting metastasis to the bones of the foot from a rectal carcinoma. In case 2 the tumor in the foot appeared several months before there was any demonstrable evidence, clinical or laboratory, of involvement in other parts of the body. The metastasis is most likely to have taken place through the blood stream. Martin,¹³ Buie,¹³ Broders¹³ and Kernohan¹³ have never encountered a case similar to either of the ones reported in this paper.

CASE 2.—History.—A white man, aged 38, a laborer, was admitted to the Edward Hines Jr. Hospital May 1, 1935.

The father had died of heart disease. The mother, three brothers and three sisters were living and well. There was no history of tuberculosis, cancer, diabetes or insanity in the family.

The patient had had the usual childhood diseases. He stated that he had had no venereal diseases. There was no history of alcoholism or drug addiction.

The patient stated that he had experienced difficulty in keeping the bowels regulated for the past ten or twelve years. Two



Fig. 5 (case 2).—Appearance of foot representing the metastasis to bones of the foot from the rectal lesion.

years previous to admission he consulted a physician, who made a diagnosis of carcinoma of the rectum following examination with roentgenograms. Operation was advised but refused. At that time a partial obstruction was present and the stools were pencil-like in character and contained blood on several occasions. One year after the diagnosis of carcinoma of the rectum was made the patient was admitted to the Mercy Hospital. A proctoscopic examination of the rectum revealed a constricting ulcerated mass 10 cm. above the anus. Following biopsy a

13. Personal communication to the authors.

diagnosis of adenocarcinoma of the rectum was made. Roentgenograms of the pelvis and chest were negative. There was a swelling of the dorsum of the right foot first noted in February 1935.

Roentgenograms of the right foot revealed a destructive process in the head of the second metatarsal and second cuneiform with beginning obliteration of the cuneometatarsal joint and fusion of the navicular, cuboid and third cuneiform.

The patient was operated on by Dr. Lester E. Garrison at the Mercy Hospital, March 2, 1935. An inoperable carcinoma of the rectum involving the pelvic wall and glands along the iliacs

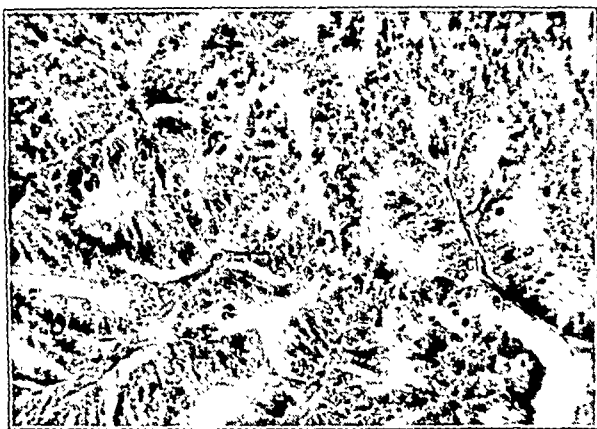


Fig. 6 (case 2).—Section of biopsy from bones of foot revealing a typical adenocarcinoma which is identical with the biopsy from the rectal lesion.

and aorta was found. A colostomy was performed. The right foot was explored and all degenerated bone tissue curetted. Pathologic diagnosis was metastatic papillary adenocarcinoma of the right foot with the primary lesion probably in the intestine. Roentgenograms of the pelvis including the upper third of both femurs made April 30 revealed an area of rarefaction involving the neck of the right femur.

A course of high voltage roentgen therapy was given by Dr. Henry Schmitz. Sixteen treatments were given through two portals over the rectal area and five treatments to the right foot. This was done as a palliative measure. Factors of treatment were as follows: 800 kilovolts, 10 milliamperes, 5 mm. of copper filter and 250 roentgen units each treatment. Following the completion of the roentgen therapy the patient was transferred from the Mercy Hospital to Edward Hines Jr. Hospital, May 1.

Examination.—On admission the patient appeared emaciated and chronically ill. The right leg and foot were in a plaster cast. Examination of the eyes, ears, nose and throat gave negative results. There was no adenopathy in the neck. The blood pressure was 132 systolic, 76 diastolic. The heart rate was 120. There were no murmurs. The lungs were normal. There were no palpable masses in the abdomen or nodes in the groin. The scar of the previous operation had healed. The colostomy was in good condition. Examination through a window in the cast revealed two cavities about 1.5 cm. in diameter extending downward for a depth of 2 cm. on the dorsum of the right foot. Considerable swelling and purulent drainage were present.

Urinalysis was negative. The Wassermann and Kahn reactions were negative. The blood count revealed: red blood corpuscles 4,200,000, leukocytes 7,200, hemoglobin 80 per cent. Roentgenograms of the right femur confirmed the condition as given at Mercy Hospital. Rectal changes were similar to those reported at Mercy Hospital. Roentgenograms of the chest, pelvis and lower lumbar vertebrae revealed no evidence of metastasis.

Biopsy of the right foot revealed an adenocarcinoma, metastatic in origin.

Course in Hospital.—The patient became progressively worse. Shortly before his death, nodules could be palpated in the liver. Also fluid appeared in the abdomen. He died July 6.

Necropsy revealed adenocarcinoma of the rectum with extension to the pelvis and metastases to the lungs, pleura, liver, lymph nodes, right leg and right foot.

THE RADIOACTIVITY OF THORIUM DIOXIDE SOL

A PRELIMINARY REPORT

ROBERT B. TAFT, M.D.

CHARLESTON, S. C.

The use of stabilized thorium dioxide sol (thorotrast) for roentgen visualization of the liver and spleen has become a well established clinical procedure, but the question of its radioactivity and the resultant effect on the reticulo-endothelial system is far from settled. The manufacturer places a warning in each box stating that the matter should be seriously considered.

Many observers have asserted that the radioactivity of this preparation is negligible as it causes no fogging of a film in many hours' time, but this is far too crude a method of detecting small quantities of radiation.

The Geiger counter,¹ when brought in the vicinity of a sample of thorium dioxide sol, showed such violent and immediate response that I at once realized that I had a means of making observations of comparatively high accuracy. Though the instrument described is capable of making only gamma ray tests, it is substantial and rugged as well as free from disturbances of moisture.

These experiments may be divided into the following steps:

1. Comparison of the gamma ray output of a clinical dose of thorium dioxide sol with a suitable radium standard.
2. The determination of the radioactivity of a phantom liver containing the entire clinical dose of thorium dioxide sol, to establish a basis from which to make percentage comparisons.
3. Tests made on the living patient who has been injected with thorium dioxide sol.

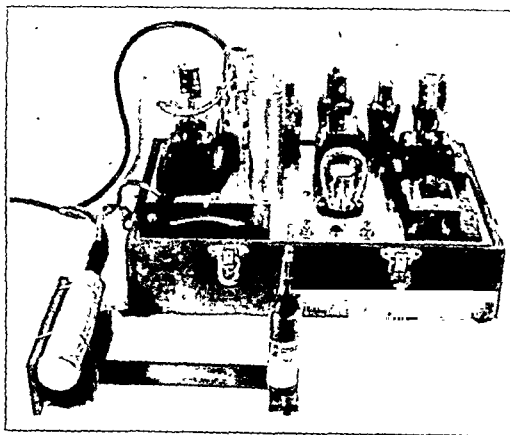


Fig. 1.—The Geiger counter is used to determine the radioactivity of one clinical dose of thorium dioxide sol by placing the three ampules an arbitrary distance from the Locher tube and recording the number of impulses over a long period of time. The "jig" is used to fix the exact distance each time.

4. Tests on the liver of a patient, removed after death.
5. Tests on the ash of liver.

1. The Geiger counter is set up and, with all possible source of radioactive material removed from the vicinity, counts are made over long periods of time to establish the number of impulses per minute which are being

1. Taft, R. B.: Technical Data Concerning the Geiger Counter, *Radiology* 26:756-757 (June) 1936.

recorded from the cosmic radiation and any other sources. This is subsequently referred to as "base rate." A sample of radium salt containing 3 micrograms of radium element is placed about 8 inches from the counter (fig. 2) and again counts are taken over long periods of time (thirty minutes or more) to establish the number of impulses per minute. This number

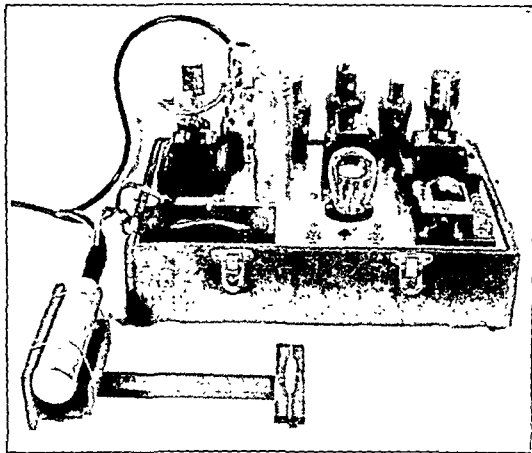


Fig. 2.—A tube containing a small amount of radium salt is substituted for the thorium dioxide sol and the impulses again are recorded.

is corrected for error by subtracting the "base rate" from it. The radium sample is then removed and the three ampules of thorium dioxide sol (a total of 75 cc.) are placed in exactly the location formerly occupied by the radium (fig. 1) and the rate per minute is again counted. These two figures when corrected for base rate error will be in the same proportion as the radioactivity of the specimens. A typical test:

Average counts from 3 micrograms of radium 56.7
Average counts from clinical dose of thorium dioxide sol (total of 75 cc.) 25.7
 $56.7 : 25.7 = 3 : x$

Where x is equivalent amount of gamma ray from thorium dioxide sol,
 $x = 1.36$ micrograms of radium

These counts are, of course, repeated many times with different distances and with filtration as great as three-eighths inch (0.32 cm.) of lead, which would show that only gamma rays are entering the chamber.

2. The "phantom liver" is prepared from wax and molded on an average normal liver. After the wax has

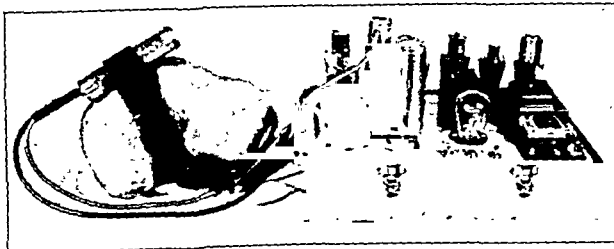


Fig. 3.—The phantom liver is used as a basis for making percentage calculations of the radioactivity of the human liver in the living patient.

hardened it is cut in two, the liver is removed and the halves of the mold are sealed together, leaving a hollow cast the interior of which is the same size and shape as the original liver. A small hole is drilled in the cast and it is filled with a mixture of water and one clinical dose of thorium dioxide sol (75 cc.). This is to serve as a standard of radioactivity from which to make percentage calculations when tests are run on the liver of a

living patient. The wall of the phantom is made as nearly as possible the thickness of the human flesh covering the liver. With the counting chamber fastened against the phantom (fig. 3) counts are made over long periods of time. The average number of impulses was found to be 52.8 per minute.

3. Several days after the patient had received the clinical dose of thorium dioxide sol (75 cc.) and roentgen examination showed good delineation of the liver and spleen, tests were made by placing the counting chamber on the body at the point estimated to be the nearest to the liver (fig. 4). Counts on different dates showed that the amount of thorium in the spleen was increasing. The counts were then compared to those on the phantom. Averages were as follows:

CASE 1.—Injections were given March 24, 27, 28, 1936.

Average counts March 29, 7.1, or 13.5% of total dose in liver.

Average counts April 2, 9.1, or 17.3% of total dose in liver.

Average counts April 28, 12.3, or 23.3% of total dose in liver.

Death occurred May 4.

Another patient, still living, showed activity of 32.4 per cent in the liver thirty-seven days after injection. It is of interest that a fairly high count was obtained over the spleen and small though definite counts were obtained over the skeleton, but no attempt was made to calculate these.

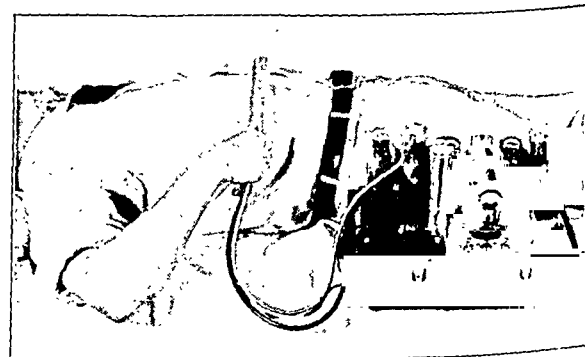


Fig. 4.—The tube is placed against the liver of the patient and the percentage of the total dose in the liver is determined by comparison with counts on the phantom.

It is to be noted that these figures are somewhat in disagreement with the final tests on the liver at autopsy and, as they cannot be repeated on the same patient, it will not be until after this presentation that the sources of error can be determined, as a number of cases will have to be worked out.

4. The liver was removed after death and, as the body had already been embalmed, the embalming fluid was tested for radioactivity and found nonactive. The counting chamber was placed near the liver but spaced with a rubber bag (fig. 5) partly filled with water in an effort to get the same spacing as the human flesh would give. The average of the counts on the liver was 24.5 per minute. This number, when compared with the numbers obtained from the phantom, showed that the liver contained 46.5 per cent of the total clinical dose of thorium dioxide sol (75 cc.).

5. As another check on the total amount of radioactive material in the liver, it was reduced to ash in order that it might be put in a small container. After the liver was chopped in small pieces it was run through a meat grinder and placed in a large evaporating dish. This was placed on a bath of boiling water for twenty-four hours to remove most of the moisture and for-

maldehyde. The material was then burned for several hours at a temperature of 450 C. The resulting ash was a powder that could be placed in a large test tube. This material was then compared with the three ampules of thorium dioxide sol and was found to contain 51 per cent of the original dose. It is seen that this compares very favorably with the result of method 4.

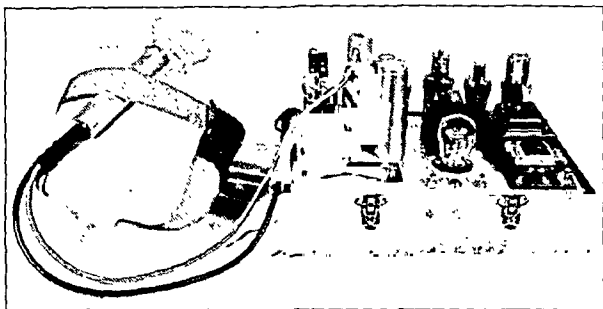


Fig. 5.—The liver removed at autopsy, after being hardened, is subjected to counting with the water bottle acting as spacing equivalent to the flesh. Afterward the liver is burned to ash and the radioactivity determined as in figure 1.

Conclusions drawn from these tests show that a clinical dose of thorium dioxide sol (75 cc.) gives the gamma ray activity equivalent to approximately 1.37 micrograms of radium and that little of this is excreted, the greatest part being stored in the liver and spleen, with some in the skeleton. Considering the effects of radioactive substances in the body, we naturally turn to the literature of accidental poisonings in industry which was so thoroughly written by many workers, particularly Dr. H. S. Martland. The argument can be justly advanced that in all these cases the amount of material was much greater than the amounts used for diagnostic purposes, but in most instances they were ingested and a high percentage excreted, whereas those injected intravenously are practically all retained. Martland² states that:

Biologically, the alpha rays are more destructive than either beta or gamma rays, the relations being 10,000 to 100 to 1. Therefore, radioactive elements in such small quantities that the beta and gamma radiations are almost negligible still produce, through their alpha radiations, intense physiologic effects, if given by mouth or vein.

In addition, the preponderance of mesothorium in luminous paint is of great toxicologic importance since the mesothorium in equilibrium with its radiothorium emits five alpha particles, whereas radium emits only four; also, the alpha particles of mesothorium and the products of its decay have greater velocity and penetration than those of radium, and, therefore, are, chemophysically and physiologically, more active.

The smallest amount of material determined in a complete autopsy was 14 micrograms,³ and that from the body of a physicist who died of radium poisoning. Attention is called to the fact that, in living patients suffering from severe radium poisoning, as little as 2 micrograms has been found to be present in the entire body,² which is not much above the amount noted in my experiments. My opinion is that the injection of thorium dioxide sol in doses of 75 cc. is a dangerous procedure, as the long continued bombardment of the reticulo-endothelial system by radioactivity will cause undesirable changes.

2. Martland, H. S.: The Occurrence of Malignancy in Radioactive Persons: A General Review of Data Gathered in the Study of the Radium Dial Painters, with Special Reference to the Occurrence of Osteogenic Sarcoma and the Interrelationship of Certain Blood Diseases, *Am. J. Cancer* 15: 2435-2516 (Oct.) 1931.

3. Martland, H. S.: Occupational Poisoning in the Manufacture of Luminous Watch Dials, *J. A. M. A.* 92: 466-552 (Feb. 9) 1929.

CONCLUSIONS

One clinical dose of thorium dioxide sol (75 cc.) gives the gamma ray equivalent of 1.37 micrograms of radium. Two micrograms of radium has produced symptoms of radium poisoning. Half of the total dose is found in the liver after death, with a large amount in the spleen and traces in the long bones.

All determinations made in this work are in close accordance with those stated in a report of the Council on Pharmacy and Chemistry of the American Medical Association.⁴

The Heyden Chemical Corporation supplied the thorium dioxide sol, stabilized (Thorotrast): Dr. Hillyer Rudisill, gave the author helpful suggestions. Roe E. Remington, Ph.D., prepared the ash.

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ESOPHAGEAL STRICTURE DILATED WITH UROLOGIC INSTRUMENTS

HENRY B. FREIBERG, M.D.

CINCINNATI

Since the turn of the century the practice of medicine has become more and more a highly specialized profession. While the vast majority of physicians are still general practitioners, an ever increasing number of them are devoting their time, attention and skill to some highly specialized phase of medical practice. It is undoubtedly this extreme specialization that has stimulated the advances in medicine as they are known today.

Extreme specialization, however, is easily conducive to narrow medical thinking. It is a simple thing for one who practices a very limited field of medicine to direct his thoughts and mental processes only in that certain field of medicine and to neglect, either consciously or unconsciously, the other phases of medicine as well as the patient as a unit. While there is a very definite and necessary as well as useful place in medicine for specialization, the dangers associated with this must be avoided. These dangers are primarily the treatment of a disease or disease condition or the treatment of some organ or group of organs of the body, without the realization that it is the patient who presents complaints and not a disease condition or a diseased organ.

Regardless of the specific complaint of the patient or of the illness that he presents, there is the prime necessity for bearing in mind the interrelationship and the interdependence, as well as the necessity for intimate cooperation, between specialists in their various fields of endeavor.



Fig. 1.—Stricture of esophagus, with dilatation above stricture.

4. Thorotrast, report of the Council on Pharmacy and Chemistry, *J. A. M. A.* 99: 2183 (Dec. 24) 1932.

Read before the annual meeting of the North Central Branch of the American Urological Association, Rochester, Minn., in November 1935.

The treatment of esophageal strictures is primarily the domain of the otolaryngologist. Esophageal strictures occur most frequently following the ingestion of lye, corrosive materials and some poisons, usually taken accidentally or with suicidal intent. Nature and the Almighty cooperate to thwart the desires of many of these individuals, and instead of passing to the hereafter in a peaceful manner they are forced to remain on this earth and suffer physical disabilities that make their lives more miserable than previously.



Fig. 2.—Severe cicatricial stenosis of the esophagus with pocket formation. Annular stricture in the upper half; tubular in the lower section. Preparation of the Pathologic-Anatomic Institute of Vienna.

With the development of the stricture of the esophagus there is an increasing inability to swallow solid foods, and this is soon followed by an inability to swallow even liquid foods or fluids, and finally, with the development of a very dense, tightly contracted stricture, there is an inability to swallow even water. It is unnecessary for me to give a picture of the pitiful state of these patients. The otolaryngologist attempts to treat them by dilation and bouginage of the strictures from above. However, with the development of a dense, almost impermeable stricture, he is unable to introduce even the finest of instruments past this stricture of the esophagus. The next step consists of the performance of a gastrostomy with the formation of a gastrostomy opening to the

skin of the abdomen. This enables one to feed a patient through the gastrostomy wound.

At the same time efforts are made to have the patient swallow a string. If this effort is successful the string is recovered through the gastrostomy opening and it is followed by sounds of increasingly large caliber. Since



Fig. 3.—Cystoscope introduced into the stomach through the gastrostomy opening. Ureteral catheter seen issuing from the patient's mouth. The patient is not anesthetized.

many of these patients are children who are highly uncooperative or adults with negativistic attitudes and since some of these strictures are absolutely impermeable to even a string, the chances of dilating the stricture from above are practically nil.

As the stricture becomes more impermeable, retention of food and of liquid becomes evident in the

esophagus above the stricture, causing dilatation of that portion of the esophagus (fig. 1). As a result of this dilatation it becomes impossible for the otolaryngologist to find the upper end of the opening of the stricture. Because of the convergence of the esophageal folds and the formation of pouches and sacculations in this dilated esophagus, attempts to find an opening through which a sound or bougie can be passed from above are frequently unsuccessful (fig. 2).

In a discussion of this problem with Dr. Samuel Iglauer,¹ professor of otolaryngology at the University of Cincinnati College of Medicine and the Cincinnati General Hospital, it was suggested that a cystoscope be introduced into the stomach through the gastrostomy wound, the stomach filled with water and an attempt made to pass a ureteral catheter retrograde up the esophagus. This was done. Our technic is as follows: The stomach is thoroughly prepared by frequent washings prior to the examination. The stomach is filled with water through the gastrostomy opening and a cystoscope is introduced into the stomach (fig. 3). One

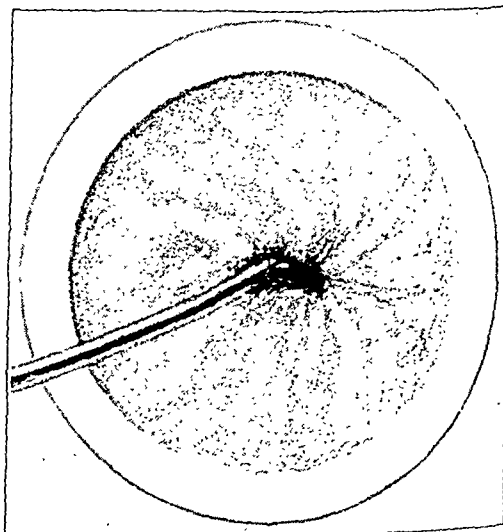


Fig. 4.—Cardia of stomach, depicting convergence of rugae toward esophageal opening. Ureteral catheter entering esophagus.

can observe the various regions of the stomach, especially the cardia. In this region one sees the folds of the stomach converge to a central point, which represents the esophageal opening (fig. 4). One then feeds a ureteral catheter through this opening and if the attempt is successful this catheter traverses the esophageal stricture and soon appears in the mouth (figs. 5 and 6). A string is then fastened to the ureteral catheter and the catheter is withdrawn, thus enabling one to recover the string through the gastrostomy wound. The treatment from this point on again becomes otolaryngologic.

The advantages of dilating the stricture from below are threefold: First, the method just described may be the only one by which any instrument can be made to traverse the esophageal stricture. Second, there is much less danger of puncturing the esophagus and causing a mediastinitis with its sequelae. Third, since a ureteral catheter is flexible it can follow the contour of the stricture, which is almost always fusiform or spiral.

1. Iglauer, Samuel: Proposed Operation for Relief of Congenital Atresia of Esophagus, *Ann. Otol., Rhin. & Laryng.* 43: 1147-1153 (Dec.) 1934; Impermeable Stricture of Esophagus Relieved by Retrograde Bouginage with Aid of Cystoscope Inserted Through Gastrostomy, *ibid.* 43: 1191-1202 (Dec.) 1932.

REPORT OF CASES

CASE 1.—M. W., a white girl, aged 3 years, swallowed some lye soap seven weeks before admission to the Children's Hospital. The mother immediately gave the child an emetic. For the next four weeks the child vomited occasionally after eating. During all this time there was an increasing feeling of malaise, and during the following three weeks the child vomited almost



Fig. 5.—Ureteral catheter traversing lumen of esophagus.

all the food eaten. The child was admitted to the hospital, July 8, 1934. While in the hospital vomiting persisted even with a liquid diet. X-ray studies and esophagoscopy showed a complete stricture at the juncture of the upper and middle thirds of the esophagus. Gastrostomy was recommended by the otolaryngologic service. July 17, gastrostomy was performed. A string could not be made to pass the stricture from above. Repeated x-ray films showed a shot at the end of the

string to be lodged just above the stricture. September 26 a cystoscope was introduced into the water-filled stomach and a ureteral catheter was passed up and recovered in the mouth, and from that time on the esophagus was regularly dilated up to size 22 French. The child was discharged March 26, 1935, in excellent condition.

CASE 2.—R. A., a Negro girl, aged 4 years, admitted to the Cincinnati General Hospital, Nov. 13, 1931, had swallowed some lye four weeks before admission. Her mouth was sore for a week and then she complained of an inability to swallow solid foods. There was no vomiting. This was followed by an increased inability to swallow liquid foods and then by vomiting and dehydration. On admission, attempts to have the child swallow a string were unsuccessful. December 2, esophagoscopy revealed several dense scars on the upper third of the esophagus through which the esophagoscope could be passed. In the lower third was an impassable scar. Dr. Iglauer advised gastrostomy and retrograde dilation. Gastrostomy was performed December 8. Feb. 9, 1932, a cystoscope was introduced into the water-filled stomach and a ureteral



Fig. 6.—Ureteral catheter having been introduced through lumen and stricture of esophagus and shown appearing in mouth.

catheter was passed upward to the pharynx. Successful dilation of the strictures followed. March 2 the child pulled the string out and refused to swallow another. March 16 a cystoscope was introduced into the stomach as described previously and was again followed by successful dilations. The patient was discharged Jan. 27, 1933. Follow-up examinations, which included fluoroscopy, failed to demonstrate any destruction or constriction in the esophagus.

CONCLUSION

1. In cases of esophageal stricture in which dilations from above are impossible, the use of a cystoscope through a gastrostomy wound, with retrograde bouginage of the esophagus with the use of a ureteral catheter, is a practical procedure.
 2. Eight patients have been treated in this manner with seven successful results.
- 468-471 Doctors Building.

PREGNANCY COMPLICATING SUBACUTE BACTERIAL ENDOCARDITIS

REPORT OF A CASE WITH IMMUNOLOGIC STUDIES

JOSEPH FELSEN, M.D.
HENRY SCHUMER, M.D.
AND
A. G. OSOFSKY, M.A.
NEW YORK

Our purpose in this report is to present the clinical, bacteriologic, pathologic and immunologic observations in a case of subacute bacterial endocarditis complicated by pregnancy. Death of the mother occurred sixteen days after the delivery of a full term healthy infant.

Pregnancy complicating subacute bacterial endocarditis is of infrequent occurrence. Croom¹ reports six cases in the literature up to 1906. The subject is further reviewed by Cameron,² and Walser³ in 1928 adds two cases of his own in one of which the mother gave birth to a healthy infant. Our chief concern in the present communication is to explain, if possible, the immunity of the fetus to the infection, which was definitely demonstrated to be a septicemia in the mother during the entire ninth month of gestation.

REPORT OF CASE

C. A., a woman, aged 25, was admitted to the Bronx Hospital Jan. 3, 1936, during the eighth month of her pregnancy. The chief complaints were cough and fever of three weeks' duration. There was no history of a previous rheumatic infection. On physical examination the patient did not appear acutely ill or indisposed, except for slight orthopnea. The uterus was enlarged to a degree corresponding approximately to the stage of gestation stated. The area of cardiac dullness was somewhat enlarged to the left, but no abnormal pulsations or thrills were noted. There was no edema or signs of congestive cardiac failure. Over the left side of the precordium and at the apex there was heard a soft, long, blowing systolic murmur, which was transmitted to the left. There was a low pitched systolic murmur over the aortic area and a suggestive presystolic murmur at the apex. The rhythm was regular and the blood pressure 155 mm. systolic, 60 diastolic. Taken in conjunction with the electrocardiograms, which revealed no axis deviation, the diagnosis of a combined mitral and aortic lesion was made (Dr. L. A. Kapp). On the day following admission (January 4) a positive blood culture was obtained (*Streptococcus viridans*). This was repeated January 10, the blood containing 400 colonies per cubic centimeter. Fluoroscopic examination January 6 showed a moderate enlargement of the left auricle and ventricle, the cardiac outline suggesting mitral and aortic disease (Dr. William Snow). The sedimentation rate of the erythrocytes was accelerated, being 18 mm. in sixteen minutes January 4 and 18 mm. in nine minutes January 13. The temperature ranged between 98 and 100 F. The patient was permitted to return to her home January 15 but was kept under

Dr. Meyer Rosensohn and Dr. Harry Aranow, attending obstetricians, cooperated in carrying out these studies.
1. Croom: *Am. J. Obst. & Gynec.* 10:22, 1908.
2. Cameron, G. S.: *Acute Endocarditis in Pregnancy*, *Canad. M. A. J.* 8:891 (Oct.) 1918.
3. Walser, H. C.: *Subacute Bacterial Endocarditis of the Streptococcus Viridans Type in Pregnancy with Two Case Reports*, *Am. J. Obst. & Gynec.* 15:840 (June) 1928.

observation. She was readmitted January 26, at which time her temperature was 101.6 F. Induction of labor was considered inadvisable, as it was felt that no additional danger to either the mother or the baby was entailed by waiting (Dr. Harry Aranow). January 29 the mother went into labor and was delivered of a healthy, male infant weighing 5 pounds 11 ounces (2,581 Gm.). The following day pain suddenly developed in the right foot, which appeared livid and felt cold. By January 31 the entire right leg was affected, the thigh being somewhat swollen (circumference 49 cm. as against 47 cm. on the left



Fig. 1.—Area of dry gangrene involving the lower portion of the leg and entire foot due to embolism.

side). Pulsation could be felt in the femoral artery but none in the popliteal, posterior tibial or dorsalis pedis. A diagnosis of embolism of the right popliteal artery was made. February 4 a line of demarcation was clearly visible at a point approximately 7.5 cm. above the external malleolus. Below this line the skin was bluish, and a necrotic area 2.5 by 3.7 cm. was noted on the plantar surface of the right foot near the bases of the first and second metatarsal bones. In view of the progressive nature of the gangrenous lesion amputation was advised (Dr. J. L. Amster) but the patient refused operative intervention. February 3 typical embolic lesions (Roth spots) in both fundi were noted (Dr. Nathan Goodfriend). Supplementary laboratory examinations revealed the following:

Blood culture revealed *Streptococcus viridans*, 300 colonies per cubic centimeter, January 27, 150 colonies January 31 and 150 colonies February 6.

The blood count, January 27, showed hemoglobin 59 per cent; erythrocytes 3,400,000 per cubic millimeter; leukocytes 10,100 per cubic millimeter; mature polymorphonuclears 78 per cent, band forms 10 per cent, small lymphocytes 10 per cent, monocytes 2 per cent.

Eight examinations of the urine revealed some albumin and casts, but no erythrocytes. The absence of erythrocytes is of interest since embolic lesions were noted in the kidney sections.

The Wassermann and Kahn reactions were negative.

February 5, cultures of the breast milk, throat and urine yielded *Streptococcus viridans*.

Chemistry of the blood January 4 and January 27 showed dextrose 98.6 and 87.4; urea nitrogen 12.1 and 11.9; uric acid 3.8 and 3.4; creatinine 1.59 and 1.29.

Laboratory examinations of the baby revealed the following: Blood cultures: January 29 (at birth): Blood from the umbilical vessels was sterile. February 3: Blood from the superior longitudinal sinus was sterile. The blood count showed: hemoglobin 90 per cent; erythrocytes 4,700,000 per cubic millimeter; leukocytes 22,700 per cubic millimeter; mature polymorphonuclears 28 per cent, band forms 4 per cent, small lymphocytes 52 per cent, monocytes 16 per cent.

The temperature of the mother before delivery varied between 98.6 and 102 F. Three days after delivery the general trend was slightly higher, but the curve was at no time of the septic type. For five days preceding death, which occurred February 14, the temperature fluctuated between 102 and 104 F. The baby's temperature was normal throughout the twenty-four days of hospitalization.

Examination of the placenta shortly after delivery revealed no essential pathologic changes. Cultures of the blood in the umbilical vessels taken by aspiration through the seared surface of the umbilical cord proved sterile.

Permission for a limited necropsy was obtained. The relevant observations were as follows:

Skin.—A few scattered petechiae were present on the abdomen and chest. There was an area of bluish discoloration with a clear line of demarcation circumscribing the right leg at a point 7.5 cm. above the external malleolus. The toes and heel were black and appeared to be completely gangrenous. The surface was dry, the toes shrunken and an oval area of necrosis was seen on the outer aspect of the small toe. A similar area, 2.5 by 3.7 cm., was noted on the plantar aspect of the right foot at the bases of the first and second metatarsal bones.

Heart.—The heart measured 14 by 9 cm. The maximum thickness of the left ventricle was 11 mm.; that of the right ventricle was 3 cm. The aortic cusps were almost completely destroyed by a large, fungating, friable, dark red vegetation which extended upward on the interauricular septum perforating it and appearing on the mesial aspect of the right auricle. The destructive process continued downward, involving the interventricular septum, which was completely penetrated in its upper portion, where a small perforation was visible. A crushed fragment of the vegetation showed gram-positive cocci in chains. There was a small localized area of pericarditis of recent origin near the division of the right coronary artery.

Kidneys.—The right kidney measured 10 by 4 cm., the left 10 by 5 cm. Several yellowish white infarcts were present near



Fig. 2.—Large fungating destructive vegetation involving all the aortic cusps. Streptococci were present in a crushed fragment.

the surfaces of both kidneys, the largest being 2 cm. in diameter. These were visible on the surface of each kidney as irregular, depressed, firm, whitish areas.

Spleen.—The spleen was 14 by 6 cm. in size. Two wedge-shaped infarcts of a whitish hue were present at the surface, which was depressed at these points. The largest infarct measured 2 cm. in its broadest diameter.

Uterus.—The uterus was 7 cm. in diameter. The placental site was still evident at the fundus, but the general appearance was that of a normally involuting uterus.

Histopathologic Changes.—Sections of the myocardium showed no Ashchoff lesions. There were both recent and old areas of productive pericarditis. In the kidneys many Baehr-Löhlein lesions were found and in the zones of infarction focal abscesses were present. The spleen showed typical infarct formation with hyaline thrombi in the splenic sinusoids throughout the section. In the placenta there was no evidence of placental necrosis or infarction, but in the epithelium covering some of the chorionic villi were seen small scattered chains of streptococci. The organisms appeared to be limited to the epithelium and were located entirely within the poorly defined cell outlines.

THEORETICAL CONSIDERATIONS

We are confronted here with the picture of *Streptococcus viridans* bacteremia in pregnancy with no obvious manifestations in the new-born child. The question of outstanding academic interest is the determination of the mechanism which protected the infant against an infective process of sufficient severity to prove fatal to the mother.

The apparent natural immunity of infants up to the age of 6 months to scarlet fever, diphtheria and poliomyelitis has been frequently demonstrated by many investigators. Ruh and McClelland⁴ have shown in a series of ninety-five cases that mothers and infants gave corresponding reactions to the Schick test with but few exceptions. Similarly von Groer and Kussowitz⁵ reported that in 143 mothers and infants 84 per cent contained equal amounts of circulating antitoxin. Reports confirming these facts were also made by Zingher,⁶ Polano⁷ and Kuttner and Ratner.⁸ The fact that placental serum was capable of blanching the rash in scarlet fever was demonstrated by Toomey and August,⁹ while Aycock and Kramer¹⁰ showed that there was a complete correspondence of neutralizing poliomyelitis antibodies in ten out of twelve mothers and infants. Similar results in six cases of *Clostridium tetani* carriers were reported by Tenbroeck and Bauer.¹¹

McKhann and Chu¹² studied the presence of antibodies in placental extracts. They were able to demonstrate qualitatively antibodies for diphtheria, scarlet fever, poliomyelitis and measles in these extracts of placental tissues. The following mechanisms were postulated by them for the production of this immunity:

1. Transplacental transmission of (a) antigen from the mother resulting in active intra-uterine immunization and (b) antibodies from the mother giving passive intra-uterine immunization.

2. Transmission of antibodies from mother to infant through colostrum and milk.

3. Tissue immunity of the rapidly growing infant.

A fourth possible mechanism may be added. The normal human placenta may be so morphologically constituted that it acts as a filter for bacterial or other infective agents without the presence of antibodies in the infant. The theory most commonly accepted is that the immunity in the new-born results from a passive

transfer of antibodies, mainly through the placenta. In this connection it is of interest to note the observations of Slemmons¹³ in three cases of placental bacteremia. In one case streptococci were demonstrable in the vessels on the fetal surface of the placenta and in the umbilical vessels. In another the organisms were found in the placenta and cord and in the wall of the vein, but none were recovered from the fetal organs. The chorionic epithelium was always intact, no bacteria being found on the surface or in the interior of the villi. Slemmons therefore concluded that infection did not occur from the maternal circulation and pass through the walls of the villi but that entrance was effected through the amniotic membrane with infection of the amniotic fluid.

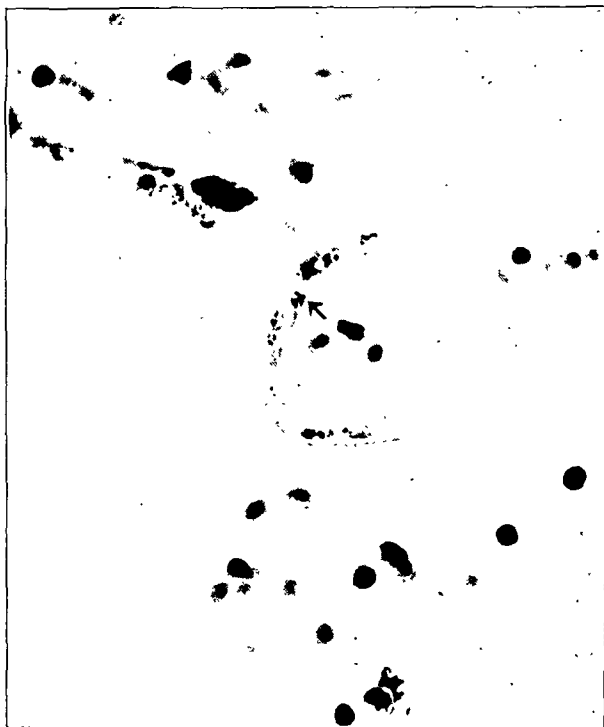


Fig. 3.—Chorionic epithelium containing small chains of streptococci (arrow).

In the case under discussion here, two of the proposed mechanisms may be eliminated. In the first place, since the infant was never breast fed, the passage of antibodies through the colostrum or milk, as demonstrated by Kuttner and Ratner,⁸ need not be considered. For the same reason the finding of *Streptococcus viridans* in the breast milk was not a factor. Secondly, since blood cultures of the infant were repeatedly sterile, there was no occasion for the development of an active immunity in the new-born. These cultures were taken under aseptic conditions from the umbilical vein and from the superior longitudinal sinus in the infant within a short time after birth. Sterile blood cultures, however, do not necessarily preclude the setting up of an active immunity. The possibility of bacterial metabolites passing through the placenta into the circulatory system of the infant still exists. These by-products of bacterial metabolism or even nonviable micro-organisms may act as specific antigens for the creation of protective antibodies. These are all factors that must be

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5. von Groer and Kussowitz, quoted from Diphtheria, London, Medical Research Council, 1923.

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taken into consideration. In the studies presented we attempted to determine the presence of humoral antibodies in the new-born and the possible rôle played by the placenta in checking the transmission of the infection to the infant.

Methods.—The bactericidal power of the mother's and infant's serum was tested in the manner to be described. This method was also utilized in experiments involving the various placental extracts. It was felt

TABLE 1.—Comparative Bacteriolytic Powers of Mother's and Infant's Serums*

Type	Serum, Mother	Organism, Streptococcus Viridans	Alexin	Growth, 48 Hour Reading
1	1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	+
2	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	2+
3	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	2+
4	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	4+
5	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
Incubated 4 hours at 37 C.				
6	Infant 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	2+
7	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	2+
8	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	2+
9	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	3+
10	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
11	1 cc. saline	0.5 cc.	0.5 cc. 1:10	4+
12	1.5 cc. saline	0.5 cc.	0	4+

* In the table 0 indicates no growth; +, less than 20 colonies; 2+, less than 100 colonies; 3+, sparse growth (more than 100 colonies); 4+, heavy growth (colonies confluent).

that the bactericidal titers would render a truer picture of the actual in vivo process than agglutination tests, since the correlation between the quantity of agglutinins demonstrable and the actual immunity present in the host are not always parallel. Also, the tendency to auto-agglutination which existed in the strain of Streptococcus viridans used in the experimental work prevented an accurate determination of the agglutinin titer.

The actual set-up in the tests is detailed in the tables. To 1 cc. of the diluted serum or placental extract was added 0.5 cc. of fresh guinea-pig serum diluted 1:10 and 0.5 cc. of an eighteen-hour blood broth culture of the organism Streptococcus viridans. The tubes containing these mixtures were incubated in the water bath at 37 C. for four hours, during which time they were frequently shaken. Immediately after incubation a standard size loopful from each tube was streaked on a blood agar plate. These plates contained 5 per cent sterile rabbit blood plus 2 per cent dextrose and the prepared mediums were tested for sterility before use.

Although a quantitative determination of the bacteriolytic action was not made, the differences in growth, recorded in the accompanying tables, were easily discernible and the possibilities for subjective errors were thus greatly lessened.

Materials.—Organism: Streptococcus viridans. This strain was obtained from the blood culture of February 6.

Alexin: Fresh guinea-pig serum diluted 1:10. Pooled serums were used in all tests.

Serums: These were obtained from both the mother and the infant during the week following delivery.

Saline Solution: A 0.85 per cent solution was used throughout.

Placental Extracts.—The placentas received directly from the delivery room were washed in running cold water to remove the superficial blood and debris. The excess water was then drained off. A weighed portion of this tissue was macerated with sand in a mortar. The

ground tissue was then taken up in sterile saline solution to make up a 20 per cent suspension. The material was allowed to extract overnight at icebox temperature. Sterile Seitz filtrates of these preparations were used in the tests and designated as saline extracts.

The alcoholic extracts were prepared as follows: The preliminary steps were identical with those just described. The macerated tissue was taken up with alcohol-ether mixtures (3 parts of 95 per cent alcohol plus 1 part of anhydrous ether) to make up a 20 per cent suspension. This preparation was extracted overnight at icebox temperature, then filtered. The clear filtrate was evaporated to dryness at a temperature not exceeding 37 C. The sediment was then taken up in saline solution up to the original volume and passed through a Seitz filter. All extracts were bacteriologically sterile when used.

Results.—The results obtained in testing the bactericidal properties of the serums and placental extracts are recorded in the accompanying tables. A comparison of the mother's and infant's serums as shown in table 1 indicate a transplacental transmission of the humoral antibodies without a diminution in quantity. Both serums showed lytic action in a dilution no higher than 1:200.

The extracts of the mother's placenta showed definite lytic properties. With the saline extract the titer was 1:160, while with the alcoholic preparation the titer was practically the same; i. e., 1:200. These titers appear the more significant when contrasted with the almost complete absence of bactericidal properties in any of the three normal placental extracts. While with the saline extract of the mother's placenta there was complete inhibition of growth in dilutions of 1:20 and

TABLE 2.—Bacteriolytic Properties of Placental Extracts from Patient and from One Normal Control

Tube	Placental Extract, Mother's Placental Extract	Organism, Streptococcus Viridans	Alexin	Growth, 48 Hour Reading
1	Saline extract 1 cc. 1:20	0.5 cc.	0.5 cc. 1:10	0
2	Saline extract 1 cc. 1:40	0.5 cc.	0.5 cc. 1:10	2+
3	Saline extract 1 cc. 1:80	0.5 cc.	0.5 cc. 1:10	2+
4	Saline extract 1 cc. 1:160	0.5 cc.	0.5 cc. 1:10	4+
5	Saline extract 1 cc. 1:320	0.5 cc.	0.5 cc. 1:10	4+
Incubated 4 hours at 37 C.				
6	Alcoholic extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	+
7	Alcoholic extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	2+
8	Alcoholic extract 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	2+
9	Alcoholic extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	4+
10	Alcoholic extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
Normal				
11	Saline extract 1 cc. 1:20	0.5 cc.	0.5 cc. 1:10	4+
12	Saline extract 1 cc. 1:40	0.5 cc.	0.5 cc. 1:10	4+
13	Saline extract 1 cc. 1:80	0.5 cc.	0.5 cc. 1:10	4+
14	Saline extract 1 cc. 1:160	0.5 cc.	0.5 cc. 1:10	4+
15	Saline extract 1 cc. 1:320	0.5 cc.	0.5 cc. 1:10	4+
Normal				
16	Alcoholic extract 1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	2+
17	Alcoholic extract 1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	4+
18	Alcoholic extract 1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	4+
19	Alcoholic extract 1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	4+
20	Alcoholic extract 1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
21	1 cc. saline	0.5 cc.	0.5 cc. 1:10	4+
22	1.5 cc. saline	0.5 cc.	0	4+

1:40, there was but partial inhibition in a dilution of 1:50 with but one of the three extracts of the normal placentas.

It should be noted that in the preparation of the placental extracts it was practically impossible to remove the traces of blood. Since the mother's blood showed lytic antibodies, it might be inferred that this remaining blood serum in the placenta accounted for the positive results in the extracts of the mother's placenta as compared with the normal controls. That this inference is

not of great validity can be demonstrated in this manner. The titer of the serum was 1:200 (table 1). The titer of the mother's placenta was 1:160 with the saline extract and 1:200 with the alcoholic extract. Since these last two dilutions were prepared from 20 per cent suspensions, it is easily computed that the actual dilution of the placenta was 1:800 with the saline extract and 1:1,000 with the alcoholic extract. Also, when it is considered that a good part of the blood in the placenta was washed out, the effect of the humoral antibodies in the placental extracts appears negligible.

CONCLUSIONS

1. The clinical, bacteriologic and pathologic changes typical of subacute bacterial endocarditis in a case here presented were complicated by pregnancy.
2. Immunologic studies indicate (a) that the bacteriolysins present in the mother's serum for this strain of *Streptococcus viridans* were transmitted to the infant

TABLE 3.—*Bacteriolytic Properties of Placental Extracts from Two Normal Controls*

Tube	Placental Extract, Normal		Organism, Streptococcus Viridans		Growth, 48 Hour Reading
	Placental Extract		Alexin		
1	Alcoholic extract 1 cc.	1:50	0.5 cc.	0.5 cc. 1:10	4+
2	Alcoholic extract 1 cc.	1:100	0.5 cc.	0.5 cc. 1:10	4+
3	Alcoholic extract 1 cc.	1:200	0.5 cc.	0.5 cc. 1:10	4+
4	Alcoholic extract 1 cc.	1:400	0.5 cc.	0.5 cc. 1:10	4+
5	Alcoholic extract 1 cc.	1:800	0.5 cc.	0.5 cc. 1:10	4+
6	Saline extract 1 cc.	1:50	0.5 cc.	0.5 cc. 1:10	4+
7	Saline extract 1 cc.	1:100	0.5 cc.	0.5 cc. 1:10	4+
8	Saline extract 1 cc.	1:200	0.5 cc.	0.5 cc. 1:10	4+
9	Saline extract 1 cc.	1:400	0.5 cc.	0.5 cc. 1:10	4+
10	Saline extract 1 cc.	1:800	0.5 cc.	0.5 cc. 1:10	4+
11	Alcoholic ext. no. 2	1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	4+
12	Alcoholic ext. no. 2	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	4+
13	Alcoholic ext. no. 2	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	4+
14	Alcoholic ext. no. 2	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	4+
15	Alcoholic ext. no. 2	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
16	Saline ext. no. 2	1 cc. 1:50	0.5 cc.	0.5 cc. 1:10	4+
17	Saline ext. no. 2	1 cc. 1:100	0.5 cc.	0.5 cc. 1:10	4+
18	Saline ext. no. 2	1 cc. 1:200	0.5 cc.	0.5 cc. 1:10	4+
19	Saline ext. no. 2	1 cc. 1:400	0.5 cc.	0.5 cc. 1:10	4+
20	Saline ext. no. 2	1 cc. 1:800	0.5 cc.	0.5 cc. 1:10	4+
21	1 cc. saline		0.5 cc.	0.5 cc. 1:10	4+
22	1.5 cc. saline		0.5 cc.	0	4+

without a diminution in titer; (b) that the placental extracts of the infected patient demonstrated marked bactericidal properties as compared to those of three normal controls.

3. The finding of streptococci in the chorionic epithelium suggests the possibility of a protective filtration action by the cells covering the villi.

4. It seems probable that at least three factors were responsible for the nontransmission of *Streptococcus viridans* bacteremia from mother to fetus; namely, circulating antibodies, antibacterial properties of the placenta and protective action of the chorionic epithelium.

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The Time Inevitably Comes.—In our present day when so great emphasis is being laid on keeping people well by periodic health examinations and preventive medicine, all this about medical practice may sound very old fashioned. But say what one will, the time inevitably comes to each and every one, now in the best of health, when he must needs cry out for some experienced and sensible doctor who can alleviate if not cure his particular ailments, be they physical or mental; and the kind of sagacity and resourcefulness he will expect and need is less laboratory born than bred of long and sympathetic familiarity with the anxieties and complaints of ailing, damaged, and worn-out human beings.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

METASTATIC TUMOR OF THE HEART

A CASE DIAGNOSED DURING LIFE

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New growths in the heart, either primary or secondary, are relatively rare. In the statistics compiled by Mead,¹ primary neoplasm of the heart occurred in 0.03 per cent and secondary in 0.5 per cent of all autopsies. The infrequency of metastatic neoplasm of the heart has been attributed to the rapid cardiac vascular flow and to the nature of cardiac muscle, a medium unsuited to tumor growth.² The literature on the subject to 1930 has been thoroughly reviewed by Yater³ and since then by Mead¹ and by Gilchrist and Millar.⁴

The diagnosis of either primary or metastatic tumor of the heart has seldom been made before death. Primary tumor of the heart has been recognized during life three times⁵ and metastatic tumor five times.⁶ The antemortem diagnosis of pericardial metastasis has been made twice.⁷

The symptoms of cardiac tumor have been classified by Fishberg⁸ and Yater.³ These authors emphasize the presence of signs and symptoms of heart disease, difficult of interpretation and not responsive to the usual therapy. There is no pathognomonic sign or symptom of cardiac tumor. However, three features, any one of which might suggest the clinical diagnosis, are heart block, arrhythmias or symptoms and signs of cardiac insufficiency without apparent cause in a patient with a known malignant process, and the accumulation of bloody fluid in the pericardial sac. It is to be stressed that very extensive involvement of the heart may occur without any disturbance of its function. A series of fourteen instances of metastatic tumor of the heart has been reported in which no case showed any symptoms of cardiac involvement during life.⁸ As Gilchrist and Millar⁴ state, "the most characteristic feature [of cardiac tumor] is the inability to ascribe a satisfactory etiological cause for the obvious signs of organic heart disease."

Metastatic tumor of the heart may occur from a primary source in any organ of the body by hematogenous or lymphatic routes or by direct extension. It

From the Medical Clinics and Departments of Pathology of the Peter Bent Brigham Hospital and Harvard Medical School.

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is stated, however, that the heart is seldom involved by continuity from neighboring organs.⁹ Pic and Bret¹⁰ first stressed the association of cardiac neoplasm with primary or secondary intrathoracic tumors. According to Mead,¹ extension into the heart from primary pulmonary carcinoma occurs in 0.26 per cent of cases, indeed a rarity in view of the relative infrequency of bronchogenic neoplasm.

The present communication concerns a patient in whom cardiac disturbances developed resulting from metastatic carcinoma of the heart, which was diagnosed clinically. The primary tumor was in the right main stem bronchus and reached the heart by direct extension, with associated auricular flutter. Only one other instance of auricular flutter resulting from cardiac metastasis has been diagnosed ante mortem, that one from a reticulum cell sarcoma of cervical lymph nodes (Fishberg's⁶ case 3). A case of congenital rhabdomyoma of the heart¹¹ and another of metastatic tumor of the pericardium¹² had associated auricular flutter, but the neoplasms were not recognized in either instance during life. In the 3,570 autopsies performed in the Peter Bent Brigham Hospital (1913-1936) there have

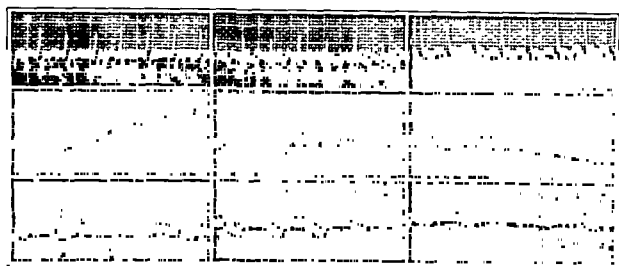


Fig. 1.—Upper tracing, taken July 27, 1936: auricular flutter present on admission. Middle tracing, taken August 3: nodal rhythm present on the eighth hospital day, following six days of normal sinus rhythm after the cessation of flutter. Lower tracing, taken August 5: partial heart block.

been in all nineteen instances of cardiac neoplasm, an incidence of 0.53 per cent. None of these except the one here reported were recognized during life. One instance of primary tumor of the heart has been included in this series of autopsies. It has been described elsewhere.¹³

REPORT OF CASE

History.—M. S., a man, aged 64, German, a chef, admitted to the hospital July 27, 1936, complained of shortness of breath, cough, swelling of the ankles and loss of weight and appetite.

Two and a half years previously a cough developed, which persisted and became worse in the few months before entry. At the time of admission he was producing a cupful daily of white, frothy sputum. On one occasion, three or four months before, there was blood streaking of the sputum. For nine months dyspnea had been present, first on exertion and later at rest. There had been some wheezing for days at a time but not occurring in definite attacks. He never had pain in the chest. For the past year he had had anorexia, insomnia and a loss of 58 pounds (27 Kg.). For two and one-half months he had noticed attacks of palpitation of the heart of a few seconds' duration. Two weeks before entry swelling of the ankles occurred, which prompted him to enter another hospital. There a heart rate of 176 was recorded but without mention of the type of rhythm. He was transferred later to the Peter Bent Brigham Hospital for further study.

Examination.—The patient was well developed and fairly well nourished but very apprehensive and orthopneic. There was slightly more fullness of the right supraclavicular fossa than of the left. The trachea was deviated to the right. Rapid, regular pulsations could be seen in the distended veins of the neck. The heart was moderately enlarged; there was a scratching quality to the sounds, but no murmurs were heard. The rate was regular at 176 per minute, temporarily slowed to just half that rate by right carotid sinus pressure. Blood pressure was 80 mm. of mercury systolic, 60 diastolic. The right side of the chest was diminished in excursion. Posteriorly it was dull to percussion throughout and accompanied by absent breath sounds and diminished tactile fremitus to the level of the angle of the scapula. A few fine râles were present over the apex. Anteriorly there was dullness and absent tactile fremitus below the level of the third rib. The left lung presented a few râles at the base. The hands were cyanotic and edematous, the left more than the right. The fingers showed definite clubbing. There was marked soft pitting edema of the feet and ankles. The hemoglobin was 75 per cent (Sahli); erythrocytes numbered 4,580,000 and white blood cells 10,400 per cubic millimeter of blood. The Wassermann and Hinton reactions for syphilis were negative. No tumor cells were seen in the sputum.

An electrocardiogram taken immediately after examination confirmed the presence of auricular flutter (fig. 1, upper tracings). A thoracentesis on the right side yielded 1,800 cc. of straw colored fluid with a specific gravity of 1.020, containing 1,300 red blood cells and 1,600 white blood cells per cubic millimeter. No tumor cells were found. In the first twenty-four hours he was given 1.4 Gm. of digitalis folia by mouth. The auricular flutter changed to a normal sinus rhythm with a rate of 104. On the third day a second thoracentesis was done with the removal of 1,100 cc. of sanguineous fluid with a specific gravity of 1.017, containing 47,000 red blood cells and 100 white blood cells per cubic millimeter. Tumor cells were demonstrated in the sediment studied in paraffin sections. The presence of tracheal displacement toward the side of the chest containing so much fluid suggested atelectasis of a portion of the right lung, further evidence of probable neoplasm occluding a bronchus. By the fourth day the swelling of both hands had extended to involve the forearms, and there was visible edema of the face and neck. A portable roentgenogram of the chest showed tracheal deviation, and a hydropneumothorax to the fifth rib posteriorly, practically obscuring the right lung field so that the presence or absence of carcinomatous growth could not be determined.

With this evidence a clinical diagnosis was made of carcinoma of the right bronchus, with involvement, probably by direct extension, of the right auricle and superior vena cava as an explanation for the disturbances of cardiac rhythm, and the edema of the face, neck and forearms.

On the eighth hospital day, additional electrocardiograms showed nodal rhythm (fig. 1, middle tracings), and two days later partial heart block (fig. 1, lower tracings). On the twelfth day the patient was seen by Dr. Lyman Hoyt, visiting physician to the hospital, who independently suggested that "with a probable malignancy in the lung and the evidence of disease in the heart, because of the many different rhythms, one might suspect malignant metastases to the heart from the lung."

In the first three weeks seven thoracenteses were performed, with removal of a total of 5,875 cc. of fluid. In all but the first instance the fluid was sanguineous. Four of these seven specimens showed tumor cells in paraffin sections of the sediment. Intensive roentgen therapy to the chest was begun, but fluid continued to accumulate so that thoracenteses were necessary every three or four days. After receiving a total of nine roentgen treatments, totaling 2,700 roentgens, he seemed somewhat more comfortable for the next week. On the thirty-first day the electrocardiograms showed delayed auriculoventricular conduction and premature ventricular beats. Edema of the arms and pleural effusion persisted. The patient became progressively worse and died somewhat unexpectedly on the thirty-fifth day in the hospital (August 30).

Autopsy.—The anatomic diagnoses were bronchogenic carcinoma of right primary bronchus with extension into the right auricle and superior vena cava; metastasis to the epicardium and right pleura; thrombosis of innominate and subclavian veins on both sides; pulmonary atelectasis on the right; bronchopneumonia on the left, and acute bilateral pleuritis.

9. Morris, L. M.: Metastases to the Heart from Malignant Tumors, *Am. Heart J.* 3:219 (Dec.) 1927.

10. Pic, A., and Bret, J.: Contribution à l'étude du cancer secondaire du cœur, *Rev. de méd.* 11:1022, 1891.

11. Wegman, M. E., and Ebert, D. S.: Congenital Rhabdomyoma Associated with Arrhythmia, *J. Pediat.* 6:818 (June) 1935.

12. Auerbach, Oscar; Epstein, Harry, and Gold, Harry: Metastatic Carcinoma of the Heart, *Am. Heart J.* 12:467 (Oct.) 1936.

13. Howck, G. H., and Bennett, G. A.: Polypoid Fibroma of the Left Auricle (So-Called Cardiac Myxoma) Causing a Ball-Valve Action, *Am. Heart J.* 5:787 (Aug.) 1930.

The right primary bronchus was completely occluded by a white, soft, friable tumor mass 1.5 cm. from its origin. Section showed that the tumor mass was 9 cm. in diameter. It replaced almost completely the middle lobe and extended for a short distance into both upper and lower lobes, with resultant atelectasis. The tumor also extended by way of the mediastinum to involve the right auricle and the mouth of the superior vena cava. The right pleural cavity contained 500 cc. of sanguineous, slightly turbid fluid. There were many fibrous adhesions between the parietal and visceral pleurae. When these were broken a gelatinous layer of metastatic tumor was found over the visceral pleura. The left pleural cavity contained 200 cc. of similar fluid but there was no evidence of metastatic tumor. The left lung showed an early bronchopneumonia in both lobes.

The pericardium showed a moist, glistening surface. On the posterolateral aspect of the heart near the origin of the pulmonary artery there were multiple small nodules of firm, white tumor tissue averaging 3 mm. in diameter on the visceral layer of the pericardium. Another similar nodule was found overlying the anterior wall of the left ventricle adjacent to the left coronary artery. As the heart was opened, a mass of tumor measuring 0.7 by 1 cm. was found on the posterior wall of the right auricle in the region of the sino-auricular node. This lay just beneath the endocardium and elevated but did not erode it. Dissection showed it to be continuous with the primary tumor mass in the right bronchus. The remainder of the wall of the right auricle in the region of the mouth of the superior vena cava was firm and rigid because of tumor invasion. As the superior vena cava was followed upward, it was found that the tumor extended into its lumen and occupied most of it at a level 1 cm. above the opening into the right auricle. The mass of neoplasm, irregular in outline, could be followed upward only 0.5 cm. Beyond that point a firm, grayish red thrombus free from tumor was found. This continued so as to occlude both innominate veins. In the subclavian veins the thrombus extended for approximately 2 cm. but did not entirely occlude their lumens.

Histologically, the tumor was a small cell carcinoma. The cells were arranged in masses separated by a small amount of connective tissue stroma. Mitoses were numerous. The tumor, while displaying a distinctly epithelial structure, showed no differentiation into epidermoid or glandular elements. Adjacent to the tumor in the heart, the muscle fibers showed much atrophy with vacuolization and nuclear degeneration.

COMMENT

This case presents an unusual opportunity to follow the development of neoplasm in the heart by repeated clinical studies, electrocardiograms and necropsy. The presence of auricular flutter on admission, with the suspicion of a bronchogenic neoplasm, suggested that there might be encroachment of the tumor growth on the right auricle of the heart. Definite localization was difficult, but with the presence of edema of the hands we thought that the tumor was probably in the region of the superior vena caval opening and possibly disturbing the sino-auricular node. The flutter mechanism allowed us to assume that the auricles were being involved by tumor but it did not allow us to conclude that the sino-auricular node was necessarily involved. Invasion of this region suggested itself first by the edema present and then by the subsequent assumption of the rôle of the pacemaker of the heart by the auriculoventricular node. If the tumor invasion was the cause of the auricular flutter mechanism, it is very striking that digitalis caused this to revert, probably through the sequence of auricular fibrillation, to a normal sinus rhythm. This response to digitalis was similar to that seen in about one third of the instances of auricular flutter associated with valvular or myocardial heart disease. It might have been expected that continued growth of the tumor would have caused recurring attacks of auricular flutter, or perhaps fibrillation, but that did not occur. Possibly the continued administration of digitalis prevented it.

Of further interest is the fact that, after six days of normal sinus rhythm following the cessation of the auricular flutter, auriculoventricular nodal rhythm was shown in the electrocardiogram. It is stated that the auriculoventricular node has its own irritability and rhythmicity.¹⁴ Further, it has been taught¹⁵ that marked depression of the normal pacemaker of the heart (the sino-auricular node) and failure of any other part of the auricular muscle to assume its rôle may cause the auriculoventricular node to take on, at least temporarily, the rôle of pacemaker of the heart. It seems fair to consider that the tumor growth in the right auricle caused depression of the sino-auricular node and that the auriculoventricular node assumed the rôle of pacemaker. It was transient, however, since subse-

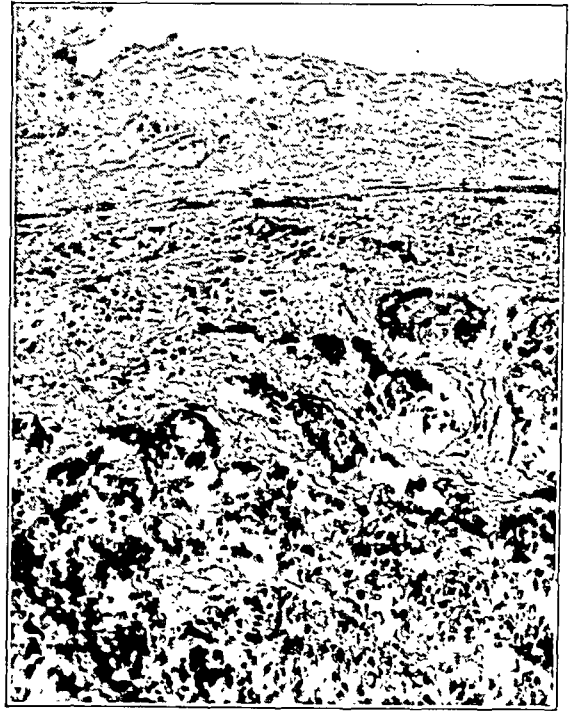


Fig. 2.—Section of the wall of the right auricle in the region of the sino-auricular node. The endocardium at the top is intact. A very thin layer of atrophic muscle persists beneath it. Most of the wall of the auricle has been replaced by the carcinoma, which occupies the middle and lower portions of the section. Hematoxylin and eosin, $\times 165$.

quent electrocardiograms showed supraventricular sinus rhythm (fig. 1, lower tracings). These subsequent changes seen in the electrocardiograms served to strengthen the clinical diagnosis of metastatic tumor of the heart.

As shown at autopsy, there was direct extension of growth of tumor into the right auricle, the least frequent mode of metastasis to the heart. Direct extension of pulmonary tumors to the heart have been reported by Geipel,¹⁶ Napp,¹⁷ Morison,¹⁸ Fishberg⁶ (two cases), Yater³ and Mead.¹

The occlusion of the lumen of the superior vena cava by tumor, which is also uncommon, adequately explained the edema of the upper portion of the body. Similar

14. Levine, S. A.: *Clinical Heart Disease*, Philadelphia, W. B. Saunders Company, 1936, p. 361.

15. White, P. D.: *Heart Disease*, New York, Macmillan Company, 1932, p. 684.

16. Geipel, P.: *Geschwülstbildung in Herzen*, *Centralbl. f. allg. Path. u. Path. anat.* **10**: 846, 1899.

17. Napp, O.: *Ueber sekundäre Herzgeschwülste*, *Ztschr. f. Krebsforsch.* **3**: 282, 1905.

18. Morison, quoted by Windholz, F.: *Virchows Arch. f. path. Anat.* **273**: 311, 1929.

instances of vena caval occlusion by neoplasm have been reported by Ehrenberg,¹⁹ Binder,²⁰ Fishberg,⁶ Barnes⁵ and Helwig.²¹ To our knowledge, except for the cases reported by Barnes and Fishberg, the finding of edema in those instances did not prompt a clinical diagnosis of such tumor extension. The physical finding of edema of the face and arms in cases of cardiac tumor usually causes the diagnosis of mediastinal tumor to be made.³ The presence of edema of the face and arms, along with the disturbed cardiac rhythm, indicated to us that there was tumor in the region of the opening of the superior vena cava. To be sure, it was impossible to determine whether the superior vena caval obstruction was due to pressure from without or to growth of tumor within its lumen. Necropsy showed the latter to be the case.

SUMMARY

In the case presented, a carcinoma of the right primary bronchus had invaded directly the wall of the right auricle in the region of the sino-auricular node.

The diagnosis of secondary involvement of the heart by neoplasm was made clinically because of development of disturbances of cardiac rhythm in a patient with a carcinoma of the right lung.

The tumor also invaded the superior vena cava with consequent venous stasis of the upper portion of the body.

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ALAR SCAPULA

TRAUMATIC PALSY OF SERRATUS MAGNUS

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Although this subject is not new and has been referred to in the medical literature occasionally since Berger's¹ original monograph in 1875, we feel that attention should be again given to it, especially to clarify its etiology and to stress its adequate treatment. This is supported by the fact that at a recent meeting of representative surgeons, a similar case was shown without any suggestions offered as to the proper treatment.

The literature on this subject in regard to its etiology is indefinite, with many of the authors favoring the view that the disability is due to traumatic rupture of the serratus magnus at its scapular insertion. Only one author was able definitely to palpate a hiatus between what he considered the retracted portion of the muscle and the edge of the scapula. Although other authors consider that the long thoracic nerve of Bell may have been injured, their writings lead one to suspect that they favor the theory of laceration of the serratus muscle as the etiologic factor for the deformity in some of their cases.

The positive differentiation as to which factor is directly responsible for this condition is difficult to ascertain clinically because of the inaccessibility of the motor points of the serratus magnus muscle. On electrical stimulation of the long thoracic nerve of Bell in

the cases in which the deformity is due to nerve injury, there will be no response. Likewise, if the muscle is completely torn, such stimulation to the nerve will not cause movement of the scapula. Owing to the difficulty of stimulating the motor points of the serratus magnus muscle, one cannot elicit contractions of the muscle that can be noted by the movements of the scapula to prove complete laceration of the muscle at its scapular insertion. It seems logical to conclude that muscle laceration, if present, should cause in addition to loss of function local tenderness, pain, swelling and at least in some cases superficial ecchymosis after the lapse of a few days, owing to the absorption of the hematoma. These changes were not noted in the four cases we observed and are reporting, nor were they noted in the majority of cases reported in the literature. Furthermore, relatively late conservative treatment of cases due to laceration of the serratus magnus muscle should not result in improvement or cure of the condition.

It is a well known fact that, following an injury to a peripheral motor nerve which does not result in laceration of the nerve, immobilization of the part in a position so that the muscles supplied by the nerve are relaxed favors return of function in the muscle with regeneration of the nerve. Therefore, if cases seen relatively late after the original injury are treated by immobilization in the position of election for relaxation of the involved muscles and result in return of function of the muscles, it is logical to conclude that the injury sustained was to the motor nerve rather than to the muscle itself.

It is our contention that the vast majority of these cases are due to nerve concussion rather than to laceration of the muscle. If this contention is true, it logically follows that immediate active treatment should be instituted in all such cases encountered.

ANATOMY

Eshner,² in a study of the anatomic considerations involved in serratus magnus palsy, was impressed by the following important considerations:

Many large and powerful muscles that control the motion of the shoulder and the upper extremity are attached to the scapula. The trapezius elevates the scapula, causing elevation of the acromial process and outward rotation of the lower angle. The lower angle is rotated medially by the rhomboids. The serratus magnus moves the scapula outward, forward and slightly upward. It rotates the scapula on its inner angle and elevates the acromion, but this motion is opposed by the elevator muscle of the angle of the scapula and the rhomboids. It maintains approximation of the scapula to the thoracic wall. The actions of the different muscles are not simple, but complicated, so that any deficiency that might result from loss of function of any one or more might be in a large measure compensated for by others.

The position of the scapula when the arm is at rest in the presence of paralysis of the serratus magnus is as follows: The scapula is elevated and its inner border is approximated to the vertebral column and directed obliquely upward and outward from below, while the inferior angle exhibits a winglike projection backward and the outer border assumes a more nearly horizontal position. The superficial and long course of the supplying nerve—the long thoracic nerve of Bell—on the side of the neck and chest exposes the nerve to injury in its peripheral course.

2. Eshner, A. A.: Three Cases of Paralysis of the Serratus Magnus and the Trapezius Alar Scapula, *J. A. M. A.* 38: 300-306 (Feb. 1) 1922.

19. Ehrenberg, L.: Zwei Fälle von Tumor in Herzen, *Deutsches Arch. f. klin. Med.* 67: 272, 1909.

20. Binder, A.: Ein Fall von primärem Sarkom des Herzens, *Verhandl. d. deutsch. path. Gesellsch.* 16: 417, 1913.

21. Helwig, F. C.: Tumors of the Heart, *J. Kansas M. Sc.* 36: 265 (July) 1935.

From the Department of Surgery (orthopedic) Rush Medical College and Cook County Hospital.

1. Berger, C.: Die Lähmung des Nervus thoracicus longus (Lähmung des Musc. serratus antic. maj.). Breslau, M. Cohn & Weigert, 1873.

ETIOLOGY

The common causes of injury are a blow, a fall, pressure from heavy weights or puncture wounds involving the supraspinatus region or compression of the scalenus medius muscle through which the nerve passes or along its course in the axillary space. Excluding trauma, the nerve of Bell may be involved in inflammatory or degenerative processes induced by factors that predispose to rheumatism, such as cold and wet; or inflammation of the long thoracic nerve may develop as a complication to febrile diseases such as typhoid, influenza, diphtheria or puerperal sepsis. The serratus may be involved along with the other shoulder muscles in the muscular dystrophies, in anterior poliomyelitis and occasionally in direct injury to the muscle. Hysterical paralysis of the muscle has been reported.

Although paralysis of the serratus magnus is thought to occur more commonly in men than in women, because of the etiologic factors involved, our four cases in this report have occurred in women. All of these cases being reported occurred in the right shoulder in adults. However, the condition has been noted in children as a result of anterior poliomyelitis.

PATHOLOGY

In our group of cases the essential pathologic condition is deduced to have been a concussion of the long thoracic nerve of Bell followed by degenerative changes in the nerve and atrophy of the serratus magnus muscle. This deduction seems justified because the disability in each of the four cases was noted immediately after the patient sustained a rather severe trauma localized to the right shoulder region and because the resultant disability was cured by a treatment proposed to facilitate return of function to a muscle the motor nerve of which has suffered a concussion.

PATHOGENESIS

In case 1 the disability occurred subsequent to the effort associated with pulling on straps to aid in the bearing down maneuver during childbirth. In this case the nerve was probably injured at the point where it passes through the scalenus medius muscle. In cases 2, 3 and 4 the disability occurred subsequent to a rather severe trauma to the right shoulder region.

SYMPTOMS

The patients were unable to elevate the arm above the horizontal, and when this was attempted the median border of the scapula approached the vertebral spines. If the arm was held horizontally in front, the median border and the inferior angle of the scapula were removed from the thorax and the scapula stood out like a wing, forming a cavity into which the hand could be inserted under the scapula. The arm could be elevated above the horizontal by the accessory muscles, especially if the upper portion of the body was inclined backward or if the inferior angle was rotated downward and outward and if pressure was applied to approximate the scapula to the thorax. There was weakness of the arm and the patients were unable to cross the arms anteriorly or to apply pressure, as in pushing. Pain was invariably associated with the physical disability and was referred to the back and shoulder regions.

TREATMENT

Thomson and Miles³ advised conservative treatment, consisting essentially of strychnine, muscle and nerve tonics (?), massage and faradic stimulation. They sug-

gested the mechanical use of a padded belt for pressure over the scapula to maintain the scapula against the thoracic wall. They consider two methods of operative intervention: (1) transplantation of the latissimus dorsi over the inferior angle of the scapula to diminish the deformity and (2) transplantation of the clavicular origin of the pectoralis major to the serratus magnus or the axillary border of the scapula.

Skillern⁴ treated one case by rest, massage and strychnine and after three months, when no improvement was noticed, advised operative measures. He formulated a procedure whereby the proximal end of the short subscapular nerve was to be anastomosed to the distal end of the sectioned long thoracic nerve of Bell. This procedure was not attempted, as far as we could determine from the literature.

Gower advised the use of an airplane type of splint, faradic stimulation, massage and muscle training. If these measures did not give results, he stated that the

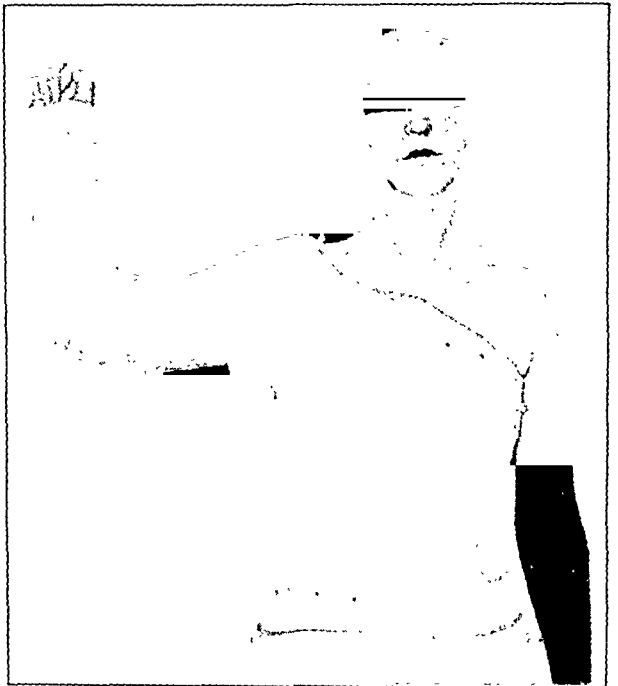


Fig. 1.—Position for relaxation of serratus magnus.

operative procedures advocated by Thomson and Miles or Skillern should be attempted. He reported one case with a successful outcome under conservative measures and four cases with no improvement. He does not state whether operation was performed in any of the unimproved cases.

Eshner² suggested treatment by massage and electricity.

The four cases that we are reporting were not treated with any of the aforementioned medicinal measures, which undoubtedly would have been worth while adjuncts to the treatment instituted. These reported cases were treated by constant immobilization with the arm held so as to relax the serratus magnus muscle. In this position the scapula was held closely approximated to the thoracic wall and this position was maintained by a plaster shoulder spica cast (fig. 1). It was deemed advisable to use the plaster cast instead of a brace so as to have the assurance that the position

3. Thomson, Alexis, and Miles, Alexander: *Manual of Surgery: Winged Scapula*, ed. 4, New York, Oxford University Press, 2:881, 1912.

4. Skillern, P. G., Jr.: *Serratus Magnus Palsy with Proposal of a New Operation for Intractable Cases*, *Ann. Surg.* 57:909-915, 1913.

would be constantly maintained. It was found that a period of three months was necessary for the return of function to the nerve which was manifested by the ability of the muscle to maintain the scapula in its normal position. After the return of function, physical therapy aids materially in restoration of muscular



Fig. 2 (case 1).—Original deformity in alar scapula.

strength and mobilization of the joints of the upper extremity. All four patients recovered complete function with this method of treatment.

REPORT OF CASES

CASE 1.—Mrs. K., aged 22, when seen, Nov. 12, 1923, stated that she injured the shoulder by pulling on straps during confinement three months previously. She was first conscious of the disability of the right shoulder after the child was born. The disability consisted of a feeling of stiffness and soreness at the top and back of the right shoulder. At first the pain was intermittent but at this time it was constant.

On examination, while she was sitting, viewed from the back, the right shoulder blade rested three-fourths inch higher than the left and the inferior angle approached the vertebral spines. She indicated the top of the shoulder and sternum 2 inches below the manubrium and the lateral surface of the chest wall along the posterior border of the axilla as the tender places. She could not voluntarily raise the arm to the level of the shoulder and in an effort to do so the upper angle of the scapula was apparently elevated by the trapezius and the lower angle would swing far away from the ribs (fig. 2). Passively there was a normal range of motion at the shoulder joint.

November 15 a plaster shoulder spica was applied with the scapula in normal position.

Feb. 14, 1924, the cast on the arm was bivalved for active and passive exercises.

March 6 the remainder of the cast was removed. The patient now has normal range of motion, and although the arm tires more easily than the other the scapula remains in its normal position (fig. 3).

CASE 2.—Mrs. S., April 24, 1932, stated that she fell while scrubbing the floor eighteen months previously and injured her right shoulder. Immediately thereafter she noted pain and disability of the right shoulder and arm. The pain was described as occurring at the top of the shoulder, and it radiated along the lateral aspect of the right side of the chest. The

disability consisted of weakness of the right arm and inability to execute what she considered the normal motions of her arm at the right shoulder.

On examination the right scapula had the characteristic wing-like projection. There was no obvious weakness of the trapezius, supraspinatus or rhomboids. The serratus magnus was atrophic.

May 12 a plaster shoulder spica was applied as described in case 1.

June 11 a felt pad was inserted between the scapula and the cast to assist in holding the scapula against the thorax.

August 13 the cast on the arm was bivalved and physical therapy was instituted.

September 10 the cast was removed. The scapula remained in its normal position.

CASE 3.—Mrs. P., aged 36, seen Jan. 27, 1936, stated that she fell out of a second story window the preceding New Year's eve, striking on her right shoulder. Immediately she noted pain in the right shoulder area and inability to use the right arm normally. Pain and disability were still present at this time.

On examination the essential changes were wing scapula on the right side with loss of function of the serratus magnus.

February 3 a plaster shoulder spica cast was applied, as described in case 1.

May 11 the cast was removed and physical therapy was instituted. At this time the scapula was in normal position and retained its normal position on all active motions of the right arm.

The patient when last seen, October 19, had normal range of motion at the right shoulder with complete recovery.

CASE 4.—Mrs. C., aged 63, when first seen, June 8, 1936, stated that she fell on the sidewalk April 1, 1936, injuring the right shoulder and sustaining a fracture of the pelvis. She had been at complete bed rest since the date of injury, but she stated that although she had no pain referable to the fracture of the pelvis she still had pain and disability of the right shoulder and arm.

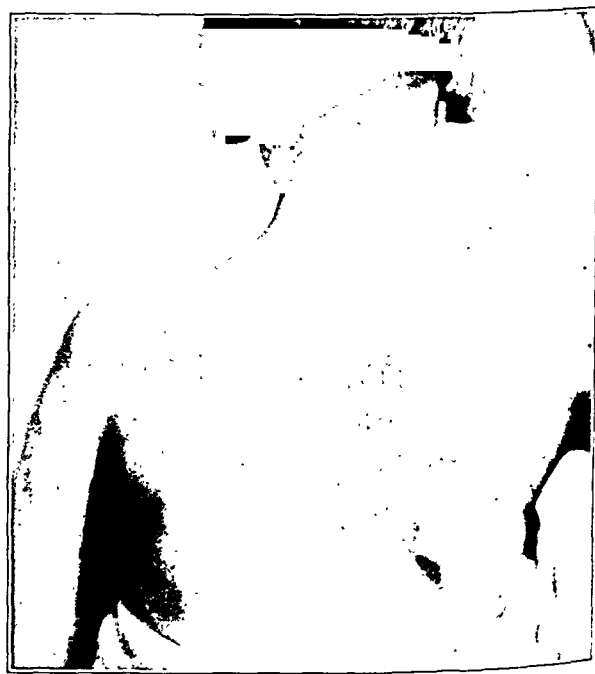


Fig. 3 (case 1).—Scapula in normal position after three months treatment.

On examination the right shoulder and arm were essentially normal except for a definite wing scapula.

The right scapula was immobilized by a plaster shoulder spica which, when removed three months later, revealed a complete return of function of the serratus magnus muscle.

SUMMARY

1. Alar or winged scapula can result from nonlacerating injury to the long respiratory nerve of Bell.

2. Alar scapula following trauma is more probably caused by injury of the nerve of Bell than by laceration of the serratus magnus muscle.

3. The prognosis of alar scapula secondary to trauma to the nerve of Bell is better than a study of the literature would lead one to believe, provided the case is adequately treated.

4. Alar scapula is amenable to proper treatment, and good results can be obtained as late as eighteen months after onset of paralysis in traumatic cases.

5. Operative intervention has not been indicated in any of our cases.

6. In the four cases reported, all were treated by the proposed method and all made a complete recovery.

NOTE.—On Oct. 19, 1936, after this article was written, another case of alar scapula was observed by us. Although it is believed to have resulted from inflammatory factors associated with a myositis of the muscles of the neck, which had occurred one year before, we propose to treat this case by the method outlined.

The end result of this type of treatment for alar scapula secondary to inflammatory factors as manifested in this case may be reported at a later date.

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CULTURE OF HUMAN MARROW

DETAILS OF A SIMPLE METHOD

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In previous articles, two methods¹ for the culture of human marrow in bulk were described in a preliminary way and some of the problems that offered promise of solution by marrow culture were outlined. Details of the procedure and of the composition of the mediums were not given because little was then known about them. It is our purpose in this article to describe a technic of marrow culture, which has proved simple and entirely satisfactory for many types of investigation, in sufficient detail so that any one trained in bacteriologic, chemical and hematologic technic can use the method.

It early became evident that there was no such thing as one set of ideal conditions for marrow culture, because growth consists of three distinct phases. These phases are multiplication either by mitotic or by amitotic division, which corresponds to hyperplasia; increase in cell size, which corresponds to hypertrophy in the terminology of pathologists, and maturation, which corresponds to differentiation in the terminology of biologists. Conditions that favored the maximum rate of multiplication did not favor maturation, and conditions that favored the maximum rate of maturation did not favor multiplication. In normal marrow, all three processes take place simultaneously. In addition, there is a fourth process; namely, release of cells from the marrow into the blood stream. It is also evident that, in the marrow of healthy adults, these processes take place at such a rate that multiplication just balances the maturation and release of cells into the blood stream so that there is no significant increase or decrease in the total number or in the relative proportions of any cell type present.

The method to be described, while not producing the maximum rate of multiplication we have obtained or the maximum rate of maturation, does permit the two to occur simultaneously much as in normal marrow. Since it was necessary to determine the proper oxygen and carbon dioxide tension, the p_{H_2} , the volume of fluid per unit number of nucleated cells, the thickness of the layer of fluid over these cells, the optimal frequency of changing the mediums and the gas mixture, the optimal temperature, the speed of centrifugation, and many other factors as well as the composition of the medium, more than 400 experiments² have been performed in the development and investigation of this technic.

DESCRIPTION OF THE METHOD

Preparation.—All transfers of nutrient fluid and marrow are made with sterile syringes and needles through rubber vaccine vial caps, the caps being sterilized each time with 70 per cent ethyl alcohol. Vaccine vials of pyrex or other lead free, insoluble glass are sterilized by dry heat at 150 C. for one hour and capped with rubber caps sterilized by autoclaving or boiling. The single cap type of vaccine vial proved superior to the double cap type at first used. An abundant supply of 50, 30, 20, 10 and 1 cc. syringes should be kept sterile by wrapping in paper and sterilizing in a dry sterilizer at 150 C. for one hour. The 20-22 gage Luer three-fourths inch needles and 19 gage 4 inch needles are dry sterilized in indented test tubes plugged with cotton.

Prepare citrated balanced salt solution and balanced salt solution as given in the table, using water freshly distilled from pyrex glass, and sterilize the solutions immediately after the ingredients are dissolved, either in the autoclave or by passing through a Seitz³ or Chamberlain-Pasteur filter and bring back to volume with sterile water. Store in 50 cc. vaccine vials.

Accumulate a supply of sterile cord serum by aspiration of blood with a sterile 50 cc. syringe and needle from a vein in the fetal side of the human placenta as soon as possible after the cord has been clamped. Introduce this blood into vaccine vials and, after clotting has occurred, centrifugate, withdraw the supernatant serum with a sterile long needle and 50 cc. syringe and, after recentrifugation, store in another 30 cc. pyrex vaccine vial in the icebox, labeled with the date and patient's name or case number. If cord plasma is desired, introduce an equal volume of cord blood into a 50 cc. vial containing 25 cc. of citrated balanced salt solution, centrifugate, draw off the supernatant plasma, recentrifugate, and store in separate vials. This plasma-citrated balanced salt mixture may be used as the medium directly and it is necessary if cells of the thrombocyte series from the megalokaryoblast to the platelet are to be grown. For all other cells, serum seems to serve equally well and has usually been employed.

It will be noted that the composition of the medium is the same as that found by the Geys⁴ to be ideal for the growth of human tumors; but we demonstrated the advantages of this medium for marrow culture by comparison of the balanced salt solution with Tyrode's solution and various other salt mixtures under con-

Aided by a grant from Eli Lilly & Co., Indianapolis.
From the Division of Experimental Medicine, University of Oregon Medical School.

1. Osgood, E. E., and Muscovitz, A. N.: Culture of Human Marrow: Preliminary Report, *J. A. M. A.* **106**: 1888-1890 (May 30) 1936.
Osgood, E. E., and Brownlee, Inez E.: Culture of Human Marrow: A Simple Method for Multiple Culture, *ibid.* **107**: 123 (July 11) 1936.

2. Dr. W. M. Fowler of Iowa City assisted in the experiments on oxygen and carbon dioxide tension. Dr. M. F. Gourley, Martha Rohner, J. C. Kennedy, R. W. Pugmire and A. N. Muscovitz assisted in the experiments on the composition of the medium.

3. A filter flask, designed by E. S. West and E. E. Osgood, to which a glass tube is fused to fit a vaccine vial cap, is a convenience in the transfer of mediums to vials without contamination.

4. Gey, G. O., and Gey, Margaret K.: The Maintenance of Human Normal Cells and Tumor Cells in Continuous Culture: I. Preliminary Report: Cultivation of Mesoblastic Tumors and Normal Tissue and Notes on Methods of Cultivation, *Am. J. Cancer* **27**: 45-76 (May) 1936.

trolled conditions and by comparison of different concentrations of cord serum with each other, with serum from the subject who donated the marrow, with serum from other healthy adults, and with serum of animals. Any concentration between 10 and 50 per cent of any type of serum tried would support growth but 35 (25-40) per cent human cord serum gave the best growth.

Technic of Sternal Puncture.⁵—Perform the sternal puncture with the patient lying on the back with the shoulders on a firm pillow and the head dropped back. Prepare the area of the sternomanubrial junction with iodine and alcohol and drape the face and shoulders with sterile towels, leaving exposed a triangle about 1 inch on a side over the middle of the sternomanubrial joint. Wearing sterile gloves and using aseptic technic, infiltrate the skin, subcutaneous tissue and periosteum with about 4 cc. of 1 per cent procaine hydrochloride. The landmarks are the jugular notch for the midline of the sternum and the ridge opposite the second ribs for the sternomanubrial joint. After allowing about three

last 300 punctures no failure to obtain marrow. The procedure is so simple and painless that many subjects have volunteered three or four times.

Concentration of Nucleated Cells.—Centrifugate the vial containing the marrow at 1,500 revolutions per minute for fifteen minutes. Withdraw an amount of the supernatant liquid equal to the original volume of citrated balanced salt solution and discard. Mix the cells with the remaining liquid and transfer to a volume index tube⁶ capped with a rubber vaccine vial cap or rubber dam. Centrifugate this at 1,500 revolutions per minute for thirty minutes, withdraw and discard the supernatant fluid, withdraw all the white cell layer and a little of the red cell layer and transfer to a 30 cc. pyrex vaccine vial containing 8 cc. of balanced salt solution. Mix well. This procedure concentrates the nucleated cells of the marrow and gets rid of most of the non-nucleated erythrocytes, which have a tendency to inhibit growth.

Dilution and Addition of Mediums.—Mix thoroughly, withdraw 0.5 cc. and do a total nucleated cell count according to the usual technic⁷ for white cell counts. Dilute the remaining marrow in the vial with the amount of balanced salt solution and cord serum calculated to give a total nucleated count between 1,000 and 2,000 per cubic millimeter and a final concentration of cord serum equal to 35 per cent by volume. Mix thoroughly and subdivide into a series of 30 cc. one-stopper vaccine vials, placing about 12 (from 10 to 15) cc. in each vial. To each of these, leaving one for a control, add a different quantity of a sterile solution, in balanced salt solution, of any substance to be tested,⁸ adding enough balanced salt solution to make the final volumes the same.

Control Counts.—Mix each vial thoroughly, remove 1 cc. for control counts, and put the vials into a 37.5 C. incubator or water bath. On the 1 cc. of well mixed culture removed, do a total nucleated and red cell count, and then centrifugate in a corked small test tube (8 by 50 mm.) supported in cotton in a 15 cc. centrifuge tube. Withdraw the supernatant liquid, leaving only a volume equal to the volume of packed cells, mix thoroughly and make smears, holding the smearing slide at an angle of from 70 to 80 degrees to secure an even distribution. for Wright's and peroxidase stains, make supravital preparations, reticulocyte counts or add vaccine and wait fifteen minutes, remix and make smears to demonstrate phagocytosis. Determinations of p_H and chemical and serologic tests may be done on the supernatant fluid. At any interval desired, remix the cultures thoroughly, withdraw 1 cc. portions and examine in a similar manner. We have usually examined our cultures every twenty-four hours.

Changing the Mediums and Gas Mixture.—Every forty-eight hours, change the mediums by centrifugating the vials containing the cultures at 1,500 revolutions per minute for fifteen minutes, withdrawing the supernatant fluid and replacing it with a volume of 35 per cent cord serum in balanced salt solution equal to the volume of fluid withdrawn. Change the air in the vials about every four days by aspirating filtered air into a 50 cc. syringe and with an extra needle run through the cap for exit of the gas, forcing the fresh air into the vials. The device for obtaining filtered air consists

Salt Solutions

	Citrated Balanced Salt Solution, Gm. per Liter	Balanced Salt Solution, Gm. per Liter
$\text{Na}_2\text{C}_2\text{H}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$	5.0	....
NaCl	6.8	8.0
KCl	0.37	0.37
NaHCO_3	0.23	0.23
CaCl_2 (anhydrous)	0.17	0.17
$\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$	0.21	0.21
$\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$	0.15	0.15
KH_2PO_4	0.03	0.03
$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$	0.07	0.07
Dextrose *	1.0	1.0

* If the solution is to be sterilized by autoclaving, dissolve dextrose separately and mix with the rest of the solution after autoclaving and before dilution to final volume.

minutes for the anesthetic to take effect, test the anesthesia with the hypodermic needle used for infiltration and, if complete, introduce the sternal puncture needle (16 gage spinal puncture needle cut off to 3.5 cm. and rebeveled) vertically into the midline of the joint. Then tilt the needle to an angle of from 30 to 60 degrees with the plane of the sternum and, standing at the patient's head, introduce it into the marrow cavity by rotating the needle. Apply very little pressure. When the needle has entered the bone, as judged by its rigid fixation, remove the stylet and attach an absolutely tight 10 cc. syringe. This syringe should previously be tested by drawing the plunger out to the 2 cc. mark and then, with the tip covered by the finger, draw the plunger out to the 10 cc. mark, holding it there for a minute or longer. When released, the plunger should go back to the 2 cc. mark, indicating no leakage of air. With the 10 cc. syringe, aspirate from 1 to 10 cc. of marrow, loosen the syringe from the sternal needle, attach a 20 gage, three-fourths inch needle and introduce the marrow into a 50 cc. vaccine vial containing 25 cc. of sterile citrated balanced salt solution. Release the plunger to allow the displaced air to escape, remove the needle and have an assistant shake the vial vigorously. Replace the stylet in the sternal puncture needle, withdraw the needle quickly and place a drop of collodion over the point of puncture. In about 400 sternal punctures by this method there have been no complications, and in the

5. Young, R. H., and Osgood, E. E.: Sternal Marrow Aspirated During Life. *Cytology in Health and in Disease*, Arch. Int. Med. 55: 186-203 (Feb.) 1935. Osgood, E. E.: *A Textbook of Laboratory Diagnosis*, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1935, p. 434.

6. Osgood, E. E.: *A Textbook of Laboratory Diagnosis*, ed. 2, p. 419.
7. Osgood, E. E.: *A Textbook of Laboratory Diagnosis*, ed. 2, p. 417.
8. The concentration of this solution should be about 100 times the final concentration desired, so that only from 0.1 to 1 cc. need be added. A 1 cc. tuberculin syringe is used for accurately measuring these quantities.

of a 2 to 4 inch length of glass tubing of suitable size to fit a vaccine vial cap, stoppered at one end with such a cap, filled with nonabsorbent cotton and autoclaved. To obtain the filtered air, puncture the sterilized cap with a sterile needle and aspirate air through the cotton.

Conditions to Be Controlled.—If all vials in one set of experiments are treated exactly alike, that is, taken out of the incubator at the same time, centrifugated at the same time, and so on, one has a perfect control for the variable purposely introduced in the experiment. The p_H of the balanced salt solution should be between 7.4 and 7.8 and the p_H of the supernatant liquid removed at the time of changing mediums should not have fallen below 7.2.

Determining the Absolute Number of Each Cell Type Present.—By multiplying the percentage of a given cell type, as determined by a differential count of 500 nucleated cells,⁹ by the total nucleated cell count, the absolute number of that cell type in 1 c.mm. is determined. Multiplying this number by the total number of cubic millimeters in the vial gives the actual number of cells of each type present in the culture at any time.

The easiest way of finding mitotic figures⁹ is to cover the stained smear with oil and make a survey of the slide, using an 8 mm. objective and 10× eyepiece. When located by this method, they can readily be found under the oil immersion lens if one has previously determined the proper part of the 8 mm. field in which to place them. Locate a characteristic cell under the oil immersion objective, switch to the 8 mm. lens and note in what part of the field the cell lies. Always move a cell to this area before shifting to the oil immersion lens.

COMMENT

Among the noteworthy observations in the series of experiments on which this technic is based was the wide variation in conditions which marrow cells would tolerate. They survived any oxygen tension between 3 and 40 per cent and any carbon dioxide tension from that of air to 10 per cent. The oxygen and carbon dioxide tensions of air were fully as satisfactory as any other tested and more convenient to use. Cultures survived any p_H between 7 and 8 but seemed to do best at from 7.4 to 7.8. They would tolerate any osmotic pressure between that of 0.7 and of 1 per cent sodium chloride but did best in an isotonic or slightly hypotonic medium. They survived any temperature between just above freezing and 41 C., but the rate of multiplication and maturation is slowed down at the lower temperatures. They survive at room temperature for two weeks without a change of mediums. This permits shipping cultures, if protected from freezing, to any point in the United States. A surface to grow on is not essential, as has been thought to be the case for other tissues. Cultures have thrived at incubator temperature with continuous agitation for many days but there seemed to be no advantage to this.

Cultures appear to do quite well with a nucleated cell count as high as 14,000 per cubic millimeter but unless the medium is changed more often than once in forty-eight hours the counts will fall unless the total nucleated cell count is under 2,000 per cubic millimeter. It seems at first remarkable that the cells withstand centrifuga-

tion as well as they do, but they probably withstand more trauma in the circulating blood. It is possible to damage them by high speed, prolonged centrifugation, but even very frequent centrifugation at the speed recommended does not seem to damage them. It is further remarkable that no more débris of dead cells accumulates because, as will be shown,¹⁰ the duration of life of the mature neutrophil lobocyte (polymorphonuclear) is only about sixty to seventy hours, so that large numbers of them must die during the period of survival of these cultures. The débris is, however, phagocytized by the living cells and apparently reutilized. Dead and disintegrated red cells are similarly phagocytized.

The cells will also tolerate very wide variations in the composition of the medium. Since serum or plasma is one of the satisfactory ingredients, it is possible to study the differences in the effect of serum or plasma from any disease on the growth of marrow from any disease. We have already determined that the serum from untreated pernicious anemia patients lacks the factor necessary for reversion to the normal of the pernicious anemia marrow picture. This factor is present in normal serum, in serum from other diseases, and in potent preparations containing the antipernicious anemia principle. Therefore it should be possible to develop a quantitative test for antipernicious anemia principle as soon as a technic is developed of growing marrow in unlimited quantities and maintaining it in a state of deficiency of antipernicious anemia principle. No evidence has been obtained that serum of a person of the subject's blood group is any better than serum from a person of another group and the subject's own serum seemed inferior to cord serum. One would think that a medium consisting entirely of the subject's own serum or plasma would be ideal, but this results in rapid maturation. Since multiplication does not occur except in the lymphocyte and plasmacyte series, after maturation proceeds beyond a certain stage most of the cells in the cultures soon die. Lymphocytes even from blood cultures multiply indefinitely by amitotic division, but the normal lymphocyte has never been seen in mitosis.

Many ingredients have been tested for artificial or synthetic medium in a preliminary way. Some concentration of each of the following definitely seemed to favor growth: egg white, cerebrospinal fluid, cystein, peptone, concentrations of dextrose up to 0.5 per cent, thyroxine, vitamin C, hemin, pentose nucleotide, antipernicious anemia principle, and peptic digests of fibrin or egg white. Some concentrations of the following substances were found which seemed to favor growth and which certainly had no deleterious effect on the cultures: ferrous iron, copper, beef embryonic extract, chick embryonic extract, vitamins A, B and D, various amino acids and combinations of amino acids, insulin, theelin, glutathione, and anterior pituitary growth hormone. In all concentrations tried which had a detectable influence, the following ingredients had an apparently deleterious effect on the cultures: isotonic sea water, egg yolk, pig embryonic extract, amniotic fluid and tryptic digests. The most striking observation was the marked increase in mitosis (from forty to sixty times the number in the original marrow) produced by some as yet unidentified constituent of egg white, while chick embryonic extract, which has been so widely used in previous tissue culture

9. The cells are pictured in color and the mode of classification, identification and nomenclature used are given in Osgood, E. E., and Ashworth, Clarice: *Atlas of Hematology*, San Francisco, J. W. Stacey, Inc., 1937. The cells capable of mitotic and amitotic division are given in this atlas and in Osgood, E. E.: *The Histogenesis, Classification and Identification of the Cells of the Blood and Marrow, Based on Cultures and Hematologic Studies of Human Marrow and Blood*, to be presented before the American Society of Clinical Pathologists, Philadelphia, June 25, 1937, and to be published in the *American Journal of Clinical Pathology*.

10. Osgood, E. E., and Brownlee, Inez: *The Length of Life of the Neutrophils, Eosinophils and Basophils of Normal Blood as Determined by Comparative Cultures of Blood and Sternal Marrow from Healthy Persons*, to be read before the Section on Pathology and Physiology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9.

work, was relatively much less effective. None of the statements made in this paragraph should be regarded as final, since they are based on relatively few experiments. A large series of carefully controlled experiments covering the whole range of variations in concentration of each ingredient from definitely inactive to definitely harmful will be necessary before its optimal concentration, mode of action and value as an ingredient of synthetic mediums can be reported. Probably a separate publication on each ingredient will be necessary. We have used the synthetic mediums of Baker¹¹ as our point of departure but many modifications have proved desirable and a great deal of work must yet be done before the ideal concentration of all ingredients will be known. These tentative results are reported because they may aid others who wish to work with the method.

Note that the method described employs no apparatus not present in a well equipped laboratory and no technic not known to a well trained technician and that it is suitable for quantitative experiments. We have cultured blood, spleen and lymph nodes by this method as well as marrow. It could undoubtedly be used for many other tissues. We have had living motile marrow cells at fifty days after removal from the human body and as long as six weeks after the death of the patient from whom the marrow was obtained. Undoubtedly cultures could be retained much longer if portions were not removed at such frequent intervals, thus eventually depleting the supply.

The methods and results to date will be shown in the Scientific Exhibit of the American Medical Association at Atlantic City, June 7-11.

Clinical Notes, Suggestions and New Instruments

A NEW RECORD IN LONGEVITY AFTER CORONARY THROMBOSIS

PAUL D. WHITE, M.D., BOSTON

S. R., a clergyman, died of congestive heart failure, Aug. 2, 1936, at the age of 73, in the twenty-fifth year after his first attack of coronary thrombosis. He was of a long-lived family, doubtless an important factor in the present consideration. He himself had always been in good health as a boy and young man, a strenuous worker and considerably overweight for many years. He had never had syphilis.

In May 1927 the patient consulted me for advice relative to a severe illness which he had suffered during evangelical meetings on Cape Cod two weeks before. While preaching, he had been suddenly seized by very severe epigastric and substernal oppression radiating strongly and equally to the two wrists, causing him to faint and lasting several hours, until relieved by two hypodermic injections of morphine. He had remained in bed one week, feeling well, except for some weakness and a short period of fever (up to 102 F.), which subsided after two or three days. On getting up and about he had noticed a little shortness of breath on exertion, but he had had no more pain.

It was then, in May 1927, at the time of my history taking in the case, that I discovered the remarkable fact that fifteen years earlier, in 1912, at the age of 48, he had the first of a series of four attacks, which were exactly alike except for severity, and which he and others had diagnosed "acute indigestion." The second attack occurred in 1915 at the age of 51, the third in 1923 at the age of 59, and the fourth, which was

the most severe of all, was the one which happened in 1927 at the age of 63, two weeks prior to his first visit to me.

On physical examination in May 1927 the patient was heavy and had normal breathing, fair color, normal reflexes, slight cardiac enlargement with diminished first sound at the apex but no murmurs and no evidence of congestive failure in the veins of the neck, the lungs, the liver, or the extremities. His pulse was regular at 78 and his blood pressure was 130 systolic and 80 diastolic. Electrocardiography showed normal rhythm, low voltage of QRS waves, inverted T waves in lead 1 and flat T waves in lead 2. He was put to bed for a few more weeks and advised to lose weight. Following these measures he improved rapidly and continued in good health for two years, at the end of which time paroxysmal angina pectoris developed for the first time; this was in 1929.

In 1931 he suffered his first attack of paroxysmal dyspnea with cardiac asthma; on digitalis he again improved greatly and his health was good during the next two years. He continued to preach and to do other ministerial work, but no longer under pressure. The winter of 1933-1934 he spent in Florida and returned north in fairly good condition, but at this time, at the age of 71, he retired from his work. He had reduced his weight in the course of several years from 222 to 178 pounds (101 Kg. to 81 Kg.). In May 1934 there occurred a paroxysm of tachycardia lasting three hours, but there were no more attacks of the sort thereafter. The next fall and winter he remained in good health but lived a very quiet life.

During the winter of 1935-1936 he was miserable in Florida, with much orthopnea at night. In May 1936 at the time of examination he looked very thin, his weight having fallen to 156½ pounds (71 Kg.). His heart was only moderately enlarged (by orthodiagram the transverse diameter of the heart was 13.9 cm. and the internal diameter of the thorax was 25.6 cm.), the sounds were fairly good, there were no murmurs, and there was no evidence of congestive failure. The blood pressure was 110 systolic and 70 diastolic. The electrocardiogram showed frequent ventricular premature beats, a heart rate of 80, sagging ST intervals in lead 1, moderate left axis deviation, and upright T waves in lead 4. I examined the patient for the last time on June 2 and found him improved; he had regained a few pounds and showed no congestion. He was on a daily ration of 1½ grains (0.1 Gm.) of digitalis. In Maine, where he spent his summers, he began about the middle of June to have increasing shortness of breath, especially at night, and he frequently required morphine for relief. The pulmonary congestion increased in degree up to the time of his death, August 2.

AUTOPSY

At autopsy the heart weighed 590 Gm. and there was moderate hypertrophy and considerable dilatation of the left ventricle, the wall of which showed extensive fibrotic changes with scarring in several different areas, particularly at the base of the left ventricle just under the endocardium and extending as far as the anterior papillary muscle, which was also considerably involved, and at the apex of the left ventricle, including also the anterior part of the interventricular septum. Over these areas, and in scattered points between, there was marked thickening with whitening of the endocardium and thinning of the ventricular wall. The greatest thinning was at the base posteriorly, where the wall was less than 5 mm. thick and showed slight aneurysmal outpouching. There was no intracardiac thrombus or evidence of pericarditis.

The right ventricle was hypertrophied to about twice its normal size, doubtless as the result of the several years of periodic insufficiency of the left ventricle with increase of pulmonary blood pressure. The muscle seemed in good condition macroscopically, and there was no evidence of fibrosis or scarring of the right ventricle. The auricles and valves were normal.

The coronary arteries were seriously affected and there was an astonishingly small blood supply possible through them. The right coronary artery, which was of unusually large size, had a very narrow lumen, nearly to the point of total occlusion in three places, two of which had apparently undergone recanalization. The right coronary artery was large and long and apparently normally supplied the posterior part of both ventricles. The left coronary artery was smaller than normal;

11. Baker, Lillian E.: Artificial Media for the Cultivation of Fibroblasts, Epithelial Cells and Monocytes, *Science* 53: 695-696 (June 19) 1936.

the circumflex branch was completely occluded by old calcification 1.5 cm. from its mouth, and the anterior descending branch showed considerable narrowing of the lumen. The coronary vessels throughout the heart felt like pipe stems. No fresh thrombus was found in them. The ascending aorta was smooth and the mouths of the coronary arteries were patent.

COMMENT

This case with postmortem proof of myocardial infarction establishes a new record in longevity after coronary thrombosis. The longest survival previously recorded was that of a patient who died in the eighteenth year after the acute infarction;¹ the patient who is the subject of the present report lived into his twenty-fifth year after his first heart attack and survived three other attacks of coronary thrombosis by twenty-one, thirteen and nine years respectively. It is likely that this record was made possible by the fact that not one of the infarcts was very large, that he belonged to a long-lived family, and that he reacted very well to treatment, consisting of digitalis and rest, when his myocardium did begin to fail. It seems quite certain that there are numerous other cases of very long survival but that they have not yet been confirmed post mortem.

SUMMARY

A new record in longevity after coronary thrombosis has been discovered in a man whose first myocardial infarction occurred at the age of 48, his second at 51, his third at 59 and his fourth at 63. He died of congestive heart failure at the age of 73, in the twenty-fifth year after his first coronary thrombosis. Postmortem examination revealed multiple areas of infarction in the left ventricle. In the previous record case survival occurred into the eighteenth year after one attack of coronary thrombosis.

Massachusetts General Hospital.

AN UNUSUAL COMPLICATION IN POTT'S DISEASE

ROBERT O. RITTER, M.D., CHICAGO

C. H., a boy, aged 11 years, first came under observation in the outpatient orthopedic department of St. Luke's Hospital in 1925. He had a marked kyphos, the result of tuberculosis of the sixth, seventh and eighth dorsal vertebrae. After several months' observation, the disease still being active, a spine fusion

operation was performed by the Hibbs method March 22, 1926. The first to the eleventh dorsal vertebrae, inclusive, were fused. There was nothing unusual about the convalescence, and after four months the patient left the hospital wearing a back brace with head support. Six weeks later he re-entered the hospital because of inability to control the legs. He was immobilized for three months on a Bradford frame without any improvement. November 23 the site of the original operation



Kyphos resulting from tuberculosis of the spine.

was explored with the expectation of finding a lack of fusion. On the contrary, there was a complete ankylosis. The cord was then exposed over the deformity by removing a wide strip through the middle of the fused area. A solid bony fusion remained on either side. An extradural abscess was found at the level of the sixth and seventh dorsal vertebrae. The dura was not opened. The wound healed readily but the spasticity

did not improve. In fact it increased, and the patient had all the neurologic signs of severe cord pressure. The thighs were flexed at right angles to the body and the legs at right angles to the thighs. No amount of effort could overcome these contractures.

It was not until August 1927 that the parents consented to another operation. The cord was exposed through the site of the former decompression. No extradural abscess was found, but the dura was tightly stretched over the sharp kyphos and its anteroposterior diameter was so narrowed that the cord was flattened like a ribbon. The dura was incised longitudinally. The cord, freed from pressure, bulged up through the opened dura. After all pressure was released, the wound was closed. Two weeks after this operation the patient could voluntarily move the toes of the right foot. Muscle control gradually returned and all spasticity disappeared. In three months he was up, pushing a wheelchair about the ward. He left the hospital Dec. 23, 1927, with full return of muscle control and no signs of cord pressure.

The boy then became a house-to-house canvasser, walking and climbing steps everywhere he went until May 2, 1931. On this date he fell down a flight of slippery steps, striking the kyphos at the edge of a step. He experienced a sudden severe pain, with an immediate loss of all muscle power and pain sense below the site of injury. He entered St. Luke's and the cord was exposed again by operation. It was found much swollen and congested over the kyphos. Longitudinal incisions were made into this area and the cord was found to be completely severed. The wound was closed and healing occurred promptly. However, he developed pressure sores over all bony prominences, and a severe cystitis. July 3 he was taken home, where he died a short time later.

122 South Michigan Avenue.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

FASTEX SELF-ADHERING GAUZE NOT ACCEPTABLE

Manufacturer: The Fastex Corporation, 730 McKnight Building, Minneapolis.

Fastex is recommended by the manufacturer for bandaging wounds, sprains, strains and other injuries when protection is needed. The gauze is self adhering, requiring no adhesive tape, no pins, no strings or tying to make it stay. According to the manufacturer it is not affected by water and does not stick to the hair or skin. It is claimed to be porous, permitting the passage of air to the wound or injury. It is indicated, according to the manufacturer, for first aid, minor emergency use and certain types of operative work in which a self-adhering gauze would prove more advisable; viz., an idiosyncrasy to adhesive tape or a tape rash.

In the production of Fastex Self-Adhering Gauze, the firm claims that bleached, sterile gauze (44 by 40) is used. The gauze is coated with a neutral rubber composition containing resins. During the process the coated material is immersed in a solution containing metaphen and eosin and further subjected to a temperature of 212 F. The firm claims that this resultant gauze is sterile and that it may be placed on an open wound in the same manner as ordinary sterile gauze but has the advantage of being self adhesive and as such more convenient to use. It is recommended by the manufacturer in instances in which physicians prescribe adhesive tape to overcome thumb sucking in babies and children.

The firm was requested to supply information concerning the possible contamination of the latex during the process of manufacture, the length of time the latex is held at 212 F., and whether or not the box in which the roll is placed was sterilized. The firm replied that the latex is held at 212 F. for approximately twelve minutes and that this heat treatment is primarily a step in the manufacturing process and only incidentally considered a sterilization measure. The firm fur-

1. White, P. D.: Longevity After Coronary Thrombosis, J. A. M. A. 100: 233 (Jan. 29) 1933.

ther stated: "Both the heat degree and the length of time in which material is subjected to that probably is not to be considered sufficient. The latex, during the manufacturing process, is not subjected to contamination except as it is momentarily exposed to the air in passing through the process."

The manufacturer claims that its products are subjected to standard autoclave treatment after being wrapped. Pressure cooker equipment, which gives bone-dry sterilization under 20 pounds of pressure for thirty minutes, is employed.

The Fastex Self-Adhering Gauze, as supplied to the trade, was referred to a clinic acceptable to the Council for investigation and report. The Council's investigator employed the methods and technic customarily used in bacteriologic examinations. He reported that bacterial growth occurred in the majority of tubes inoculated with the gauze under consideration, and that at least four different species of bacteria were encountered. No identification was attempted, but the predominant species appeared to be *B. subtilis*.

Control tubes opened in the same manner as the test tubes, but not inoculated, showed no growth.

A control series of tubes in which autoclaved gauze was cultured showed no growth. Subsequent growth after inoculation of three species into these tubes indicates that the absence of growth was not due to a growth-inhibitory substance which might have dissolved out of the gauze.

The Council's investigator concluded that bacteria were present in the gauze as furnished him.

The Council on Physical Therapy voted that Fastex Self-Adhering Gauze be declared not acceptable for inclusion in its list of accepted devices because the product was not sterile as claimed but was found to be contaminated with bacteria.

HANOVIA HOME MODEL ALPINE SUNLAMP (Models S-309 and E-302) NOT ACCEPTABLE

Manufacturer: Hanovia Chemical and Manufacturing Company, Newark, N. J.

The Hanovia Alpine Sunlamp (Models S-309 for alternating current and E-302 for direct current) is recommended by the firm, for home use. It is an improved model of the Hanovia Home Model Alpine Sunlamp, which was accepted by the Council (*THE JOURNAL*, Oct. 20, 1934, p. 1229). Solid activated electrodes are used now because, according to the company, the danger of breakage in shipment is reduced, and the lamp lights on turning the switch without the necessity of tilting the burner. Otherwise the firm claims the characteristics of Models S-309 and E-302 are the same as the previously accepted model.

The lamp gives the typical high pressure hot quartz mercury arc spectrum, and the spectral energy distribution is almost identical with that of all other high pressure hot quartz mercury arc lamps.

The intensity of the lamp is from 180 to 200 mw/cm² for radiations 3,130 angstroms and shorter, and from 320 to 360 mw/cm² for the total ultraviolet, when measured directly opposite the burner with the burner mounted in its reflector and 30 inches distant. Under the same conditions at 36 inches, the intensity is from 125 to 140 mw/cm² and from 250 to 270 mw/cm² respectively.

At 40 inches the intensity of radiations 3,130 angstroms and shorter is 90 mw/cm², being about the same as the intensity for summer sunshine at Washington, D. C., for the sun's radiations 3,130 and shorter.

The life of a burner is from 1,500 to 2,000 hours, the depreciation being mainly the blackening of the walls of the burner.

It is to be remembered that the Council accepts for home use only lamps that emit practically no ultraviolet radiation of wavelengths shorter than 2,800 angstrom units. The Home Model Alpine Sun Lamp (Models S-309 and E-302) emits such radiations, but this might be eliminated if a corex window was used.

With regard to the time of exposure to produce an erythema, the firm states that for the average individual a first exposure

should be made at 30 inches and for not longer than four minutes on any one body surface.

The advertising matter was examined and was found to be unacceptable. The leaflet "Announcing the New Hanovia Alpine Sun Lamp for Your Home" contains, among others, statements such as: ". . . will help you keep fit and build your resistance against disease"; "Its beneficial ultraviolet rays will not alone increase your energy but they quiet your nerves, stimulate your appetite, and induce sound and restful sleep"; ". . . whose cool, beneficial rays are the most effective means for maintaining the health of children and building up their resistance to diseases and ailments"; "The wavelength distribution of the rays emitted from this new burner resembles very closely that of the sunshine high up in the mountains at the elevations where the most beneficial ultraviolet rays have not yet been filtered out by dust, smoke or other absorbent elements. Sunshine of such beneficial quality can never be enjoyed at sea level or below about 5,000 feet, not even on very clear days with bright sunshine"; "Brings the mountain sun into your home."

As the Hanovia Chemical and Manufacturing Company has not submitted critical evidence to substantiate the aforementioned claims, the Council declared the lamp nonacceptable.

When the foregoing report was submitted to the Hanovia Chemical and Manufacturing Company, a suggestion was made that the lamp be equipped with a filter to remove the ultraviolet radiation of wavelengths shorter than 2,800 angstroms. In its reply the company rejected the suggestion to so equip the sunlamp, giving as its reason that such filters do not exhibit a sharp cut-off at 2,800 angstroms, transmitting all longer rays and absorbing all shorter rays. Instead the firm states that filters do absorb an important part of the rays of 2,900 and 3,000 angstroms.

The firm further stated that it most emphatically denied on a basis of the present day evidence that ultraviolet in such quantities as are likely to be used in the home might cause deleterious changes in the skin and that such evidence existing refers to cases exposed to natural sunlight. Excerpts from articles written by several specialists in ultraviolet therapy were cited to support the firm's contention. The purpose of these excerpts, according to the firm, emphasize the point that "ultraviolet will help to maintain health as near to par as other circumstances permit."

The Council observed that the excerpts were taken from articles prepared by specialists on the subject of ultraviolet radiation. Articles from which excerpts are taken may have an entirely different meaning when considered as a whole, but an excerpt viewed along with or in the presence of thoughts of another nature may be misleading.

The objection raised by the firm to compliance with the requirements to furnish a Corex D filter did not seem insurmountable to the Council. A single thickness of Corex D glass transmits 10 per cent ultraviolet radiation at 2,804 angstroms, 50 per cent at 2,967 angstroms and 75 per cent at 3,132 angstroms. This is the spectral region which has been recognized as efficacious for prophylaxis in rickets. According to the records submitted by the firm, at 30 inches the sunlamp in question produces an erythema in about four minutes. This time is entirely too short for sunlamps used in the home without the supervision of a physician. The Council pointed out, however, that the lamp met the specifications of the Council for acceptance, provided it was used under the supervision of a physician.

In the opinion of the Council and its consultants, the information presented by the firm was insufficiently conclusive to warrant a change in action.

In view of the foregoing, the Council voted to reaffirm its stand that the Hanovia Home Model Alpine Sunlamp (Models S-309 and E-302), be declared unacceptable for inclusion in its list of accepted devices because: (1) when the lamp is used without the Corex D window the ultraviolet of wavelengths shorter than 2,800 angstroms is greatly in excess of the value acceptable to the Council for sunlamps recommended for home use, and (2) because the lamp is recommended for use without the supervision of a physician.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.
PAUL NICHOLAS LEECH, Secretary.

"CICAL BASE 125" NOT ACCEPTABLE FOR N. N. R.

Under the name "Cical Base 125," Chemical Industries of California requested the Council's consideration of an ointment base stated to be composed of stearic acid, spermaceti, white wax, terpineol, an especially processed stable animal oil, distilled water, triethanolamine and sodium benzoate. The firm claims the use of this ointment base to be "of value in dry skin, senile skin, sunburn, windburn and ichthoid conditions." In addition it is proposed as an ointment base for prescriptions. As such it is claimed to be superior to those in common use because diffusible in the presence of serous and sanguineous exudates.

At the time of presentation of the product, the firm was asked for information (1) as to the purity of the triethanolamine, (2) as to the nature of the "especially processed, stable animal oil" and (3) as to the justification for the use of a proprietary noninformative name involving the use of numbers. The firm replied that the triethanolamine used consists of approximately 82½ per cent triethanolamine, 15 per cent diethanolamine and 2½ per cent monoethanolamine. Concerning the oil used in the product, the firm states "There are patents pending on the especially processed stable animal oil used in CICAL BASE 125. It will depend entirely on the type of patents granted whether we shall be able to divulge the formula . . ." The firm indicated that, if the patents were issued, the formula would be supplied to dermatologists already using the product so that they may be able to report on its clinical use. At present, therefore, the product is essentially a secret one. The firm has not supplied adequate methods for determination of the identity and purity of the product. In this connection the firm states that the constituents of the various ingredients are related and chiefly inert and fatty in nature, making accurate identification and assay of the stearic acid, spermaceti, white wax, terpineol and the "stable animal oil" impossible because on mixing, the identifying characteristics are lost. The Council could not, of course, accept a product on the basis of the inadequate statement of identity and composition now available.

Concerning the name "Cical Base 125" the firm stated that it is willing to make necessary changes in case the Council finds the name in conflict with its rule. The firm proposed exemption of the product from the Council's rule concerning the use of numbers and letters in names on the ground that this was a special case in which the use of a numeral or letter seems desirable because further improvement of the product was anticipated. As alternative for a numbered series, the firm proposed the use of such names as Cical Base Hydrous, Cical Base Anhydrous, Cical Base Heavy, Cical Base Medium and Cical Base Light. The name as it stands is in obvious conflict with the Council's rules. In the first place there is the objectionable secrecy in connection with the "processed stable animal oil." The name "Cical" is essentially meaningless. Sufficient proof of the originality of the product has not been furnished to justify exemption of the product from the rule concerning the use of numbers in names. The alternative names proposed by the firm are not considered satisfactory.

The Council considered advertising submitted by the firm consisting of a leaflet entitled "Cical Base 125-Diffusible in Exudates," a booklet "Chemical Industries of California-Cical," a price list, on the back of which appears the names of various Cical products with a statement of indications for each, and a printed sheet detailing four case histories.

In the advertising the following list of Cical products are mentioned: Cical Base 125; Salbencal (Whitfield); Salbencal Half Strength; Carsincal; Sulpercal; Sulpercal Half Strength; Ammercal No. 1; Ammercal No. 3; Ammercal No. 5; Cical Lotion; Cical Lotion With Oil; Tarcical; Cical Pomade; For-

mical (Lotion); Cical Pine Tar Shampoo and Veracal. None of these have been presented for the Council's consideration and no proof for the claims made for any of them has been submitted.

Concerning Cical Base 125, such claims as the following are made in the advertising: "Remarkable in softening and emollient properties, CICAL BASE 125 possesses that desirable power of penetration inherent in animal oils, fats and waxes." "Because of its complete diffusibility, it offers a maximum dosage of medicaments incorporated in it to the area under treatment." "CICAL BASE 125 is entirely lacking in the clinging greasiness so characteristic of petrolatum (vaseline) bases and has none of the disagreeable odor or stickiness of lanolin (wool fat)." It is stated to be very stable with no tendency to turn rancid on aging. The broad claim is made that Cical Base 125 has advantages possessed by no other base. The only proof submitted for this broad claim is two photomicrographs in the circular "Cical Base 125-Diffusible in Exudates," purporting to show the difference in diffusibility of hydrous lanolin in contact with a drop of water and Cical Base in contact with a drop of water. This is certainly not proof for such broad claims as the firm advances. The case histories presented show nothing unusual or extraordinary and certainly cannot be considered as competent controlled clinical evidence to establish the therapeutic claims made for Cical Base 125.

The Council declared "Cical Base 125" unacceptable for inclusion in New and Nonofficial Remedies because it is a preparation of essentially secret and uncontrolled composition marketed under a proprietary, noninformative name (in which there is the use of numbers), with unsupported therapeutic claims.

When the foregoing report was sent to the firm, it replied at length giving its reasons for presenting the product for consideration, explanation for its claim concerning the diffusibility of the base, explanation of the significance of the names (the name Cical, for instance, being derived from the initials of the firm name, Chemical Industries of California) and a résumé of its marketing policies. None of this in the opinion of the Council furnished reason for modifying the report of the Council's consideration. The Council therefore reaffirmed its rejection and authorized publication of the statement.

ANTICOMAN NOT ACCEPTABLE FOR N. N. R.

Anticomman tablets were submitted to the Council on Pharmacy and Chemistry by Bruno L. Monias, American representative of Anticomman G.m.b.H. of Berlin-Halensee, Germany, as a therapeutic agent for the correction of hyperglycemia and glycosuria. The tablets are said to consist of pancreatic enzymes, sodium phosphate, tannic acid, bismuth subnitrate and decamethylenediguanidine ditartrate. A previous Council Report held another product (Pancresal), proposed for the same purposes, to be unacceptable (THE JOURNAL, May 27, 1933, p. 1686) which contained, similarly, a guanidine derivative together with a number of other substances.

For the purpose of correcting hyperglycemia it may safely be said that (1) tannic acid, bismuth subnitrate and sodium phosphate are worthless and (2) that no pancreatic extract on oral administration has been shown thus far to have any effect.

Since the employment in 1926 of decamethylenediguanidine under the name of Synthalin by a number of workers (notably Frank, Nothmann and Wagner) in the treatment of diabetes, a rather extensive literature has accumulated. Apparently the drug does produce a reduction in blood sugar but, as shown by Morawitz and verified by Hornung, and by Boedeker and Junkersdorf (Solmann, Torald: A Manual of Pharmacology, ed. 4. Philadelphia, W. B. Saunders Company, 1936) this action is quite different in mechanism from that of insulin. Here the hypoglycemic influence is accomplished through damage to liver function and structure leading to exhaustion of hepatic glycogen. The therapeutic effect of the drug is shown by Bischoff to parallel closely the degree of toxicity and extent of liver damage produced. Other workers have reported the consistent side-effects of severe gastro-intestinal disturbances, nervous depression and even acute nephritis.

In view of the danger attending the use of guanidine derivatives, as contrasted with the singular freedom from toxicity accompanying the intelligent administration of insulin, it would seem to constitute a lack of therapeutic finesse to employ the former, regardless of the lesser convenience occasioned by the parenteral route.

Anticomman presents other features which are in conflict with the rules of the Council, but the most important from the standpoint of physician and patient alike is that such mixtures tend to replace a thoroughly investigated and highly satisfactory drug (insulin) with one of dubious and unpredictable therapeutic value which presents significant toxicologic possibilities.

Until there is clear cut, carefully controlled evidence, no product which is in the twilight zone of this field of scientific experimentation should be employed for the treatment of diabetes, for which the physician already has in his armamentarium the excellent insulin and the helpful dietary regimen.

The Council declared Anticomman not acceptable for New and Nonofficial Remedies because it is a mixture of well known substances marketed under a therapeutically suggestive name with unwarranted therapeutic claims which may tend to replace the use of a scientifically correct and physiologically sound therapeutic regimen.

This report was submitted to the manufacturers, and the reply indicated that the firm felt that Anticomman was being discriminated against. The Council gave it the same attention, consideration and evaluation that any other product receives. The firm claimed that the guanidine content was detoxified by the pancreatic powder; but while there is some evidence that Anticomman does not produce the degree of damage encountered with other guanidine compounds, evidence that such effects were never encountered has not been submitted to the Council. The firm stated that it was open to suggestion as to a name. The Council replied that it would consider the question of a name provided the other objections were met. The firm asked for reconsideration of the usefulness of Anticomman in cases of mild diabetes with and without insulin. Such reconsideration led the Council to recommend that the previous action be reaffirmed and the report be approved for publication.

The firm was notified of this action and in reply reiterated certain points which it has attempted to maintain without submitting what the Council considers adequate evidence to support the contentions involved. The whole question was reviewed by the Council and the previous action reaffirmed.

POISONIVI AND POISONOK NOT ACCEPTABLE FOR N. N. R.

A physician called the attention of the Council to a letter sent by the Cutter Laboratories to one of his patients recommending "Poisonivi" to be taken by mouth. Some products of this firm stand accepted by the Council and the firm should therefore be familiar with the Council's rulings. Although the Council has accepted some rhus preparations marketed under correctly informative names, it has not accepted, nor previously considered, the preparations Poisonivi and Poisonok of the Cutter Laboratories, which are proposed for use against rhus poisoning and are marketed under coined, therapeutically suggestive names. The Secretary asked the firm whether the physician had been correctly informed that this product was being directly advertised to the public. In reply to the Secretary's inquiry, the firm wrote (Oct. 7, 1936):

"For some years we have marketed 'Poisonivi' and its companion product 'Poisonok' through drug channels, although this has been confined almost exclusively to the West Coast.

"Occasionally here in the East we receive mail inquiries from people who have either used the material successfully in the past and wish to obtain more of it, or from people who have heard of the product from others, who have used it and ask us for information about it.

"When such inquiries received their reply from us, the products and its limitations have been described and the enclosed circular is attached to our reply.

"We are not aware that we have trespassed any rules in sending out this sort of information in response to inquiries on this product, which, by the way, is the only one we manufacture which is handled in this manner. I would appreciate hearing from you further if we are wrong in this case."

The Council considered the circular sent by the Cutter Laboratories and found that it could not be held as anything but

indirect advertising to the public of medicinal preparations, a direct contravention of the Council's rules. In the circular under consideration the products are advertised as curative agents. Moreover, the lay advertising of these preparations will undoubtedly tend to promote self medication very harmful in character. It is almost superfluous to point out the danger which might arise from the lay person's diagnosing his condition and treating it with a preparation which might not be intended for his real affliction and which indeed might aggravate it. If Poisonivi and Poisonok have any merits they may much better be directed to the medical profession.

The Council declared Poisonivi and Poisonok unacceptable for New and Nonofficial Remedies because they are marketed under proprietary, therapeutically suggestive names and advertised directly to the public.

ENDO-BISARPHEN NOT ACCEPTABLE FOR N. N. R.

Endo-Bisarphen is the proprietary name under which Endo Products, Inc., markets a product stated to be "... a combination of organic arsenic with bismuth, in solution eminently suitable in 'Wassermann-fast' cases and in congenital syphilis." In an advertising circular it is stated that "Each 2 cc. represents approximately 26 mgm. of metallic bismuth combined with 10 mgm. of Arsenic in the form of a Paraglycolamino-arsenic acid derivative, of the Arsphenamine type."

Endo Products, Inc., has not submitted this preparation for the Council's consideration, nor has any product of this firm been considered or accepted by the Council. The A. M. A. Chemical Laboratory has made no investigation of the preparation, and no actual chemical analysis of the product is available.

An advertising circular bearing the caption "Endo Bisarphen, Bismuth & Arsenic combined in a stabilized solution for Intramuscular Administration in all stages of Syphilis" contains the following statement: "It is a generally accepted theory that Arsphenamines become spirocheticidally active only after they have been converted into a chemical substance which is therapeutically effective. Bisarphen, however, is directly spirocheticidal and undergoes no chemical changes, permitting for its immediate action." No proof for this claim is given. There are five brief and wholly inadequate "case histories" furnished in this circular. All refer to so-called Wassermann-fast cases and are worthless from the standpoint of showing the value of Endo-Bisarphen.

The only literature that can be found on Endo-Bisarphen is a favorable but inadequate paper by Dr. Jacob Skeer (*Urol. & Cutan. Rev.* 37:495 [July] 1933). He stated that he had given about 700 injections of the product intramuscularly. The number of cases treated was not stated, nor were the types of cases outlined. The product, he states, was devised by Vincent Christina in 1929 and is claimed to be a combination of bismuth and arsenic, a synthetic compound, each 2 cc. ampule containing 44 per cent metallic bismuth and 16 per cent organic arsenic. The author claims that it has a higher water soluble bismuth content and a higher arsenic content than any other compound. He makes the statement "According to findings of syphilologists ultimate effects are equal to that of modern intensive combined treatment with arsphenamine, bismuth and mercury." He states that the spirochetes have been known to disappear in forty-eight hours and that lesions are healed after ten to twenty injections.

The author also states that it is of value in relieving gastric symptoms and the lightning pains of tabes and in Wassermann-fast cases. Since he has given only 700 injections of the product himself, and there is no literature to call on, it is difficult to see how the ultimate effects of the product, "according to findings of syphilologists," could be "equal to that of modern intensive combined treatment with arsphenamine, bismuth and mercury."

No information is available as to the real effect of Endo-Bisarphen on the disappearance of spirochetes from primary lesions, the rapidity of disappearance of secondary lesions, or the true effect on cerebrospinal syphilis from the standpoint of study of clinical results, change in cell count or change in

serologic reactions, in gold colloid curve, and so on. No real evidence of either the efficacy or toxicity of this product has ever been cited.

The firm apparently is a subsidiary of the Intravenous Products Company of America, Inc., 251 Fourth Avenue, New York City. No preparation of either of these organizations stands accepted by the Council for inclusion in New and Non-official Remedies. A note appeared in THE JOURNAL fifteen years ago ("Intravenous Specialties," THE JOURNAL, Dec. 10, 1921, p. 1912) concerning certain preparations of the Intravenous Products Company of America. The present day advertising of both the Endo Products Co. and the Intravenous Products Company of America Inc. leaves much to be desired, particularly from the standpoint of scientific accuracy.

The physician should contrast the method of introduction of Endo-Bisarphen with that of another firm which has recently introduced an arsenical for the treatment of syphilis. The latter firm conducted researches over a period of three years, spent large sums of money and had the advantage of study of many hundreds of cases in several university clinics in this country before it deemed the product ready for submission to the Council, and only after the product was accepted by the Council did the firm venture to put it on the market for general use in the treatment of syphilis. Apparently, the promoters of Endo-Bisarphen have chosen to market their preparation without the benefits afforded by time-consuming but essential preliminary procedures of this sort.

The Council declared Endo-Bisarphen unacceptable for inclusion in New and Nonofficial Remedies because it is a preparation of inadequately declared composition and unsubstantiated therapeutic usefulness, marketed under a proprietary name with unwarranted therapeutic claims.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SYNTROPAN.—The phosphate of *d*-1-tropic acid ester of 3-diethylamino-2,2-dimethyl-1-propanol — $C_6H_5.CH(CH_2OH)COO.CH_2C(CH_3)_2CH.N(C_2H_5)_2.H_2PO_4$.

Actions and Uses.—The actions of syntropan are similar to those of atropine. However, syntropan acts to a certain extent directly on smooth muscle in addition to its inhibitory effect on parasympathetic endings. It does not depress salivary secretion as actively as atropine or induce mydriasis as readily, and its inhibitory action on the parasympathetic innervation of the heart is not as pronounced as that of atropine. Syntropan is employed for its antispasmodic action on smooth muscle.

Dosage.—For oral administration, one tablet (50 mg.) three or four times a day; for subcutaneous or intramuscular administration, 1 cc. of syntropan solution (representing 10 mg. of syntropan) three times a day.

Manufactured by Hoffmann-LaRoche, Inc., Nutley, N. J. U. S. patents 1,932,341 (Oct. 24, 1933; expires 1950) and 1,987,546 (Jan. 8, 1935; expires 1952). U. S. trademark 308,080.

Ampuls Syntropan Solution, 0.01 Gm., 1 cc.

Tablets Syntropan, 0.05 Gm.

Syntropan occurs as a white, crystalline powder, with a faint roseate odor and having a bitter taste; freely soluble in water, slightly soluble in absolute alcohol, insoluble in chloroform and ether. The aqueous solution is acid to litmus. Syntropan melts at 142 to 145 C. From aqueous solutions, alkali hydroxides precipitate the free base as a water-white oil, which does not solidify at ordinary temperature.

Place about 0.01 Gm. of syntropan in a porcelain dish, add a few drops of nitric acid, and evaporate to dryness on a water bath; a yellow residue results; cool, add a few drops of alcoholic potassium hydroxide solution; the mixture is a violet color.

Dry about 0.5 Gm. of syntropan, accurately weighed, to constant weight at 100 C.; the loss in weight does not exceed 1 per cent. Incinerate about 0.5 Gm. of syntropan, accurately weighed, in a platinum crucible; the residue does not exceed 0.1 per cent. Transfer about 0.5 Gm. of syntropan to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22; the percentage of nitrogen corresponds to not less than 3.3 per cent nor more than 3.6 per cent when calculated to the dried substance.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

COLONIAL FLOUR, PHOSPHATE ADDED

Manufacturer.—Bliss Milling Company, Seymour, Ind.

Description.—An "all purpose" "short patent" flour milled from soft wheat with 0.4 per cent added monocalcium phosphate; bleached.

Manufacture.—Selected soft Indiana wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate ($\frac{1}{4}$ ounce per 196 pounds) and with nitrogen trichloride ($\frac{1}{4}$ ounce per 196 pounds) and with 0.4 per cent monocalcium phosphate.

Analysis (submitted by manufacturer).—Moisture 12.2%, total solids 87.8%, ash 0.7%, fat 0.7%, protein ($N \times 5.7$) 8.4%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 77.7%.

Calories.—3.50 per gram; 99 per ounce.

MAYBELLE BRAND OLEOMARGARINE

Manufacturer.—The Cudahy Packing Company, Chicago.

Description.—An oleomargarine prepared from hydrogenated oleo and cottonseed oils, pasteurized cultured skimmed milk and salt. It contains 0.1 per cent of sodium benzoate.

Manufacture.—Hydrogenated oleo and cottonseed oils are heated in a steam-jacketed kettle, emulsified with the added milk and salt, and crystallized. The mixture is churned until the proper consistency is obtained, refrigerated, molded into prints and automatically wrapped and packed in cartons.

Analysis (submitted by manufacturer).—Moisture 15.4%, total solids 84.6%, ash 3.32%, sodium chloride (NaCl) 3.25%, protein ($N \times 6.25$) 0.3%, fat (ether extract) 80.3%, carbohydrates (by difference) 0.7%.

Calories.—7.27 per gram; 206 per ounce.

(1) PERFECT'S BRAND GOLDEN TABLE SYRUP

(2) PERFECT'S BRAND CRYSTAL WHITE TABLE SYRUP

Distributor.—A. H. Perfect and Company, Fort Wayne, Ind.

Packer.—Torbit and Castleman Company, Louisville, Ky.

Description.—Table syrups; (1) a blend of corn syrup (90 per cent) and refiners' syrup (10 per cent); (2) a blend of corn syrup (90 per cent) and sucrose syrup (10 per cent) flavored with vanilla; the same as Bob White Brand Fancy Golden and Crystal White Table Syrups (THE JOURNAL, Aug. 3, 1935, p. 369, and Oct. 19, 1935, p. 1271).

KING OF HAWAIIA BRAND PINEAPPLE DESSERT CUTS

Distributor.—Alexander & Baldwin, Ltd., Honolulu, Hawaii.

Packers.—Kauai Pineapple Company, Kalahoe, Kauai; Baldwin Packers, Ltd., Lahaina, Maui, and the Maui Pineapple Company, Kahului, Maui (subsidiaries).

Description.—Essentially the same as crushed, sliced and tidbit pineapple products distributed by Alexander and Baldwin (THE JOURNAL, April 13, 1935, p. 1331, and June 8, 1935, p. 2097) except for the shape of the pieces. All trace of the core and fiber is removed from the fruit.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 22, 1937

THE RABIES MENACE

The alarming situation which prevailed throughout the country last year in relation to dog-bites and rabies appears even more menacing this spring. During the recent warm days, according to newspaper reports, more than a hundred persons have been bitten by dogs daily in the city of Chicago alone. This represents more than a 50 per cent increase over the number of bites during the similar period of 1936. More heads of suspected animals have been examined, and the number found positive for rabies has also increased more than 50 per cent. A dramatic illustration of the situation was provided by a mongrel, believed rabid, which invaded an elementary school classroom in Chicago two weeks ago and bit four pupils. Two more children were bitten before this rabid animal was captured. Similar incidents seem inevitable as long as the numerous stray dogs remain at large.

Although conditions in Chicago may be more serious than those elsewhere, the situation is also actually or potentially critical in all other districts where dogs, especially strays, are numerous. The problem has received previous recognition in *THE JOURNAL*.¹ As judged from reports from all over the world, rabies is generally far from quiescent. The Sixth Analytical Review² on the Results of Anti-Rabies Treatment published by the League of Nations may be cited. The statistics quoted refer almost entirely to the year 1933, which in general may be considered far less dangerous than now. The mortality figures are based on reports from Pasteur institutes and hence cover only treated cases. The mortality among 286,373 Europeans was 0.16 per cent, and in the case of 219,681 non-Europeans the mortality rate was 0.72 per cent. These were the combined figures available. Another significant point mentioned in the review was that twelve out of 2,500 persons bitten on the limbs and beginning treatment within a week developed rabies, and each of the twelve

developed rabies within thirty days after having been bitten. The need for constant vigilance in starting treatment early is clearly indicated.

The extent to which informed sources recognize the great danger of rabies is further illustrated by the fact that the Rockefeller Foundation began a program of laboratory and field work on rabies in 1936. This disease, according to the foundation report,³ has become increasingly menacing, particularly in some of the Southern states. With this recognition that some regions are more threatened than others, it must also be emphasized that no areas where possible carriers of rabies are present can be considered exempt. The Rockefeller report also states that there has been little research on this disease since Pasteur's time. A quicker and more positive test for rabies in animals and a less cumbersome method of vaccination are badly needed.

All these facts point to the conclusion that immediate and coordinated action is necessary. Rabies is a disease in which individual efforts are relatively helpless unless aided by the full machinery of social organization. The press, public health officials, the police and physicians—in both their individual and their official capacities—should take steps to combat this threatening situation at once if a considerable number of unnecessary deaths is to be avoided. In the face of the now existing information as to the frequency and rapid spread of rabies among animals, it seems criminal to postpone action until the disease is identified in human beings. Because rabies is primarily a disease of dogs, it seems likely that this campaign will have the whole-hearted support of all the animal humane societies.

REPRODUCTIVE PERFORMANCE IN MAN

The purpose of a recently reported study by Pearl¹ was to determine the proportion of women potentially capable physiologically of reproducing in 1930 who actually did so in that year. In the birth registration area of the United States, which in 1930 included all the states except Texas and South Dakota, there were 30,871,292 living females between the ages of 15 and 50. Approximately 63 per cent were married, while 37 per cent were either single, widowed or divorced. Nevertheless, as Pearl points out, the vast majority of them were potentially capable physiologically of reproduction. Theoretically, therefore, there might conceivably have been an equal number of births, or at least some kind of product of conception during that year. Actually, in 1930 there were officially recorded as occurring in the same area to mothers aged 15 to 49 inclusive a total of 2,256,913 living and stillbirths, including the illegitimate as well as the legitimate. This does not represent all the reproductive activity of the year, since it does not include a considerable number of

1. Control of Rabies, editorial, J. A. M. A. 105:1432 (Nov. 2) 1935.
2. McKendrick, A. G.: A Sixth Analytical Review on Reports from Pasteur Institutes on the Results of Anti-Rabies Treatment, Quart. Bull. Health Organ., League of Nations 4:732 (Dec.) 1935.

3. Fosdick, R. B.: The Rockefeller Foundation—A Review for 1936. New York, 1937, p. 20.

1. Pearl, Raymond: Potential and Actual Reproductive Performance in Man, Human Biol. 8:592 (Dec.) 1936.

unrecorded abortions, nor does it record, on the contrary, the inclusion in the total of multiple births, each of which required only one mother. After correction Pearl takes the approximate figure of 2,287,196 births probably produced by mothers between 15 and 49 years of age inclusive in 1930. Thus only about 7.4 per cent of the females physiologically potentially capable theoretically of reproducing in that year actually did so. Even if 15 per cent is deducted because of probable physiologic sterility, the percentage of births to physiologically eligible women rises only to 8.7. It follows that if each of the women from 15 to 49 years of age was to reproduce annually for approximately thirty-three years at the average rate exhibited by the whole group in 1930 she would produce as an average in her whole reproductive life a total of approximately 3.3 births. This figure is startling in its contrast to the conditions which prevail among organisms lower in the evolutionary scale than man. Individually and racially there appears to be, under the present social and environmental conditions, a slow but definitely progressive trend toward less and less human reproduction without any material lessening of human sexual activity. Thus it seems probable that while only about 10 per cent of the women theoretically potentially capable of reproduction in 1930 actually reproduced, at least 70 to 75 per cent of them were sexually active in greater or lesser degree in that year.

More than three fourths of all the births in 1930 were to native white mothers. Also, more than three fourths of all the women who potentially might have been mothers were native whites. Of the remaining births, 11.5 per cent were to colored mothers, of whom probably over 92 per cent were Negroes. Taken as a whole, the closeness of agreement in 1930 between the percentages of live births and of potential mothers by nativity-race classes was extraordinary. Each nativity-race class, whether native white, foreign-born white, Negro or other, was, as a whole group, reproducing in 1930 proportionately to its representation in the population with a near approach to exact precision. Any idea that foreign-born women as a group in the whole United States population are at the present time outbreeding their native-born sisters—a notion of rather widespread journalistic prevalence, at least—finds no vestige of support from the actual facts of 1930.

Under present environmental conditions, Pearl says, and especially under the present social and economic environment, there seems to be evidence of a slow progressive trend toward more facultative interference with reproductive activity. If such a trend should persist indefinitely, man would eventually disappear, and while this prediction has been made it seems unlikely of fulfillment. The bulk of reproducing in all nativity-races is done by women between the ages of 20 and 34 years. Since this is true for all groups, and, as has been previously mentioned, their weighted mean relative fertilities, on a live birth basis, were, for each of the

groups as a whole, approximately equal, and since, as has been also determined, the contraceptive efforts of Negroes are both less frequent and less effective, interpretation of the facts offers considerable difficulty. Pearl concludes that a really sound judgment as to the precise nature and degree of the effect of contraceptive practices on the overt or expressed reproductivity of large population aggregates is still a long way from being understood.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION AT ATLANTIC CITY SESSION

For the first time at a meeting of the American Medical Association a program¹ will be presented by the Joint Committee on Health Problems in Education, through which the American Medical Association has cooperated with the National Education Association since 1911. The American Medical Association Sections on Pediatrics and on Industrial and Preventive Medicine and Public Health have joined in sponsoring this symposium. The National Education Association, representing more than 200,000 teachers, and the American Medical Association, representing more than 100,000 physicians, are the natural and logical groups to cooperate in the solution of health problems created or at least presented by education. The Joint Committee was created in 1911 as one phase of the awakening interest in public health which took place at that time and which gave birth to many if not most of the well known health movements of today. Before that time, interest of the public in health had been spasmodic and the principal attention given to public health questions had been by the medical profession.

Health has been placed first among the seven objectives of education. The Joint Committee in its earlier days met a great need for brief, inexpensive manuals for teachers on various phases of school health problems, such as sanitation, ventilation and lighting. The greatest contribution of the committee has been its manual *Health Education*,² which is now in its third revision and which has sold thousands of copies to teachers, who for many years relied on it as practically the sole textbook on health education. There are now numerous textbooks, but the Joint Committee's manual still maintains high rank as an authoritative document. The time is past when technical information needs to be given to the teacher by a joint committee. A crying need exists, however, for a declaration of policy with respect to the scope, extent and limitations of responsibility of the schools for the health of school children. In recognition of this need the Joint Committee has published a survey of opinions on school

1. Symposium on Health Problems in Education, J. A. M. A. 108: 1615 (May 8) 1937.

2. *Health Education, A Program for Public Schools and Teacher Training Institutions*, 1930 edition, prepared by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association (1937 revision in preparation).

health policies.³ At its last meeting, at New Orleans, a resolution was passed creating a special subcommittee to report not later than Nov. 1, 1937, with at least a tentative draft of a declaration, not of the views of others, but of opinions of the Joint Committee with respect to policies toward school health problems.

The symposium at Atlantic City, in which prominent physicians and health educators will participate, is planned as an opportunity to discuss matters of policy. Views expressed in this symposium may well have a considerable influence on the deliberations of the Subcommittee on Policy. All physicians interested in the health of school children and in the relation of school health policies to medical practice will be welcomed at the symposium. It will be held at 2 p. m. Tuesday, June 8, in the Music Room of the Hotel Chalfonte.

Current Comment

ROENTGEN IRRADIATION OF THE OVARIES IN MAMMARY CANCER

The existence of a relationship between the secretion of the ovaries and the growth and development of the mammary glands has been well established, both in man and in experimental animals. In man, this relationship is evident in the development of the breasts at puberty and subsequently in the rhythmic changes of the mammary gland during the menstrual cycle. That these changes are brought about chiefly by estrogen, secreted by the ovary, has been adequately demonstrated. Because of the growth promoting action of this factor on the mammary gland and because of the relatively high incidence of carcinoma of the breast during the period of greatest ovarian activity, many investigators have long suspected that there might exist a causal relationship between estrogen and mammary cancer. A considerable amount of recent experimental work appears to support such a view. For example, a number of compounds known to possess estrogenic properties are definitely carcinogenic under certain laboratory conditions.¹ Of particular interest in this connection is the recent observation² that the repeated injection of estrogenic substances into male mice frequently produces carcinoma of the mammary glands. Clinical reports that may be interpreted as suggestive of a relation between the ovaries and mammary cancer have appeared in the literature for many years. Indeed, as early as 1889, bilateral oophorectomy was declared³ to be beneficial in the treatment of the disease. Since that time numerous reports of an improvement in cancer of the breast following castra-

tion have appeared. With the discovery of the inhibitory effect of roentgen irradiation on the activity of the ovaries, this type of treatment has been substituted in some cases for the surgical removal of the glands. According to some investigators³ the results on the whole have been favorable. Consideration of the extensive and diverse evidence pointing to a relationship between the ovaries and the development of mammary cancer has recently led one investigator³ to suggest that roentgen irradiation of the ovaries, with the resulting elimination of estrogenic activity, may be beneficial as a supplement to radical mastectomy and radium therapy in the treatment of the disease. The value of this type of auxiliary therapy in the treatment of human mammary carcinoma, however, remains to be more adequately determined.

PROGRESS IN INTERNAL MEDICINE

So rapid is progress in medicine and so numerous are the publications recording that progress that few physicians can hope to keep constantly up to date even in special fields. For some time the *Archives of Internal Medicine* has been publishing monthly reviews of developments in many conditions. Already during 1937 Rackemann has reviewed the literature on allergy for 1936; Wilder and Wilbur have reviewed recent contributions to the subject of metabolism and nutrition, and in the April issue Greene and others have surveyed recent contributions to our knowledge of liver and biliary tract disease. Many physicians have found these collective reviews so useful that they have urged the publication of an annual volume containing this material. Physicians who are unacquainted with these succinct compilations and analyses of medical progress are neglecting a most useful addition to graduate education.

REGISTRATION UNDER HARRISON NARCOTIC ACT

On or before July 1, every physician registered under the Harrison Narcotic Act must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual narcotic tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding \$2,000, or to imprisonment for not exceeding five years, or to both. While the Commissioner of Internal Revenue has been lenient in the past in enforcing the criminal penalties provided by the act for tardy registration, continued disregard on the part of some physicians of the requirement of the act with respect to reregistration will inevitably lead to criminal prosecutions. In recent years the commissioner has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or, as an alternative, accepting criminal prosecution, with resultant publicity and liability to fines of indefinite amounts and possibly imprisonment. This was an act of grace on the part of the commissioner; under the

3. A Preliminary Study of Group Opinions Relating to Certain School Health Policies, prepared and published under the direction of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, 1934-1935.

1. Loeb, Leo: Estrogenic Hormones and Carcinogenesis, *J. A. M. A.* 104: 1597 (May) 1935.

2. Gardner, W. U.; Smith, G. M.; Strong, L. C. and Allen, Edgar: Experimental Production of Malignant Growths in Mice by Estrogenic Chemicals, *J. A. M. A.* 107: 656 (Aug. 29) 1936.

3. Witherspoon, J. T.: Roentgen Irradiation of the Ovaries as Supplement to Surgical and Radium Therapy for Mammary Cancer, *Arch. Surg.* 33: 554 (Oct.) 1936.

law he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. Physicians must bear the requirements of the act in mind. If tardiness in registration results in criminal prosecutions, hereafter, they must recognize that ample notice has been given them.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Medical Election.—Dr. Edward S. Sledge, Mobile, was elected president of the Medical Association of the State of Alabama at its annual meeting in Birmingham, April 22. Dr. Alvin B. Coxwell, Monroeville, was reelected vice president of the southwestern division for four years, and Dr. Douglas L. Cannon, Montgomery, was reelected secretary. The next meeting of the association will be held in Mobile, April 19-21, 1938.

Personal.—Dr. William J. Craig, Shreveport, La., has been named health officer of Lawrence County.—Reuben T. Crawford, D.D.S., Montgomery, has been placed in charge of the reinstated division of oral hygiene of the bureau of hygiene and nursing of the state department of health. The bureau was abandoned during the depression on account of depleted funds.—Dr. Holland Thompson, formerly of the Maybury Sanatorium, Northville, Mich. (Detroit Municipal Tuberculosis Hospital), has been appointed tuberculosis clinician of the Alabama State Department of Health.—Dr. James O. Colley Jr., Troy, has been appointed physician to the Troy State Teachers College, succeeding Dr. William Shelby Sanders, resigned.—Dr. Albert C. Jackson, Jasper, was chosen president of the Alabama Hospital Association at its meeting in Birmingham, April 21.—Dr. Abraham I. Perley, Colemar, has been appointed health officer of Chambers County, effective May 1; he succeeds Dr. Chester E. Johnson Jr., who resigned to engage in private practice.

ARIZONA

Twenty Years as State Secretary.—The Arizona State Medical Association, at its annual meeting in Yuma, April 1-3, presented Dr. Delamere F. Harbridge, Phoenix, with a solid gold, diamond studded badge emblem, in appreciation of his having served twenty years as secretary of the organization.

Hospital News.—A new building will be erected for the county hospital in Phoenix, which will accommodate 200 patients.—A hospital is to be erected in Pima County, according to *Southwestern Medicine*. The WPA will furnish the labor, and \$10,000 will be made available from the relief fund for materials. Contracts were awarded April 17 for the hospital equipment, which will cost \$21,700.

CALIFORNIA

State Medical Election.—Dr. William W. Roblee, Riverside, was chosen president-elect of the California Medical Association at its annual meeting in Del Monte, May 5, and Dr. Howard Morrow, San Francisco, was inducted into the presidency. Dr. Frederick C. Warnshuis, San Francisco, was reelected secretary. The next annual session will be held at Pasadena, the date to be determined later.

Annual Tuberculosis Meeting.—The California Tuberculosis Association held its annual meeting at Riverside, April 2-3. One feature of the meeting was a symposium on silicosis, at which the speakers were Drs. Leroy U. Gardner, director, Saranac Laboratory for the Study of Tuberculosis, Saranac Lake, N. Y.; Royd R. Sayers, U. S. Public Health Service, Washington, D. C., and Anthony J. Lanza, assistant medical director, Metropolitan Life Insurance Company, New York.

Memorial Tablet to Dr. Mattison.—A bronze plaque was presented to the library of the Los Angeles County Medical Association, Los Angeles, May 13, in honor of the late Dr. Fitch C. E. Mattison, Pasadena. Mrs. Bess M. Behr, daughter of Dr. Mattison, unveiled the plaque. Speakers

included Paul Popenoe, D.Sc., and Drs. George H. Kress, Leroy B. Sherry and Harlan Shoemaker. Executed by Miss Maud Daggett, Pasadena, the plaque bears the portrait of Dr. Mattison, who at one time was president of the Los Angeles County Medical Association and, in 1913, of the California Medical Association. He died in 1932, aged 71.

COLORADO

Personal.—Dr. John A. Sevier, Colorado Springs, has been elected president of the Colorado Tuberculosis Association.

—Dr. Rudolph Albi, Denver, was recently appointed a member of the Colorado State Board of Medical Examiners succeeding Dr. Vardry A. Hutton, Florence, whose term expired April 3; Dr. Albi's term will end in 1943.—Dr. Morris Hinenburg, executive director of the Jewish Hospital, Brooklyn, N. Y., has been appointed superintendent and medical director of the Sanatorium of the Jewish Consumptives' Relief Society, Spivak, effective June 1.

Conference on Psychiatry.—At the request of several state hospital executives, a three day conference was held recently at the Colorado Psychopathic Hospital to discuss the recent advances in psychiatry, especially the insulin shock treatment of schizophrenia, fever therapy treatment and the possibilities of the additional use of state hospitals for teaching and research. Seventeen state hospital executives attended the conference, including the superintendents of each hospital in Nebraska, and representatives from Kansas, Wyoming, Utah, New Mexico, Washington and, in addition, staff members from the Colorado State Hospital at Pueblo.

CONNECTICUT

Personal.—Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, was recently guest of honor at a birthday dinner. Dr. George Blumer, who preceded Dr. Blake as professor of medicine, was toastmaster.—Dr. Francis I. Nettleton has been appointed health officer of Shelton.

Study of Infant and Maternal Mortality Rates.—The Hartford Board of Health has authorized its president, Dr. George E. Cogan, to appoint a committee to study a plan whereby all infant and maternal deaths in the city would be reviewed at regular meetings of the obstetric and pediatric services of the city's four hospitals. According to the *New England Journal of Medicine* the plan was proposed by Dr. James R. Miller before the Hartford Medical Society, February 15. Its objective is to establish quarterly meetings to review these deaths as reported by the board of health. Similar plans in New Jersey and Ohio have been effective in reducing the mortality rates, it was stated.

DISTRICT OF COLUMBIA

In Memory of Dr. Wilmer.—A bronze plaque was unveiled in the Chapel of St. Joseph of Arimathea, Washington, D. C., recently, in tribute to Dr. William Holland Wilmer, professor of ophthalmology, Georgetown University School of Medicine, 1906-1925. In 1925 Dr. Wilmer became professor of ophthalmology at Johns Hopkins University School of Medicine, Baltimore; ophthalmologist in chief at Johns Hopkins Hospital, and director of the Wilmer Institute, which was created as a tribute to him by patients and friends. He retired from these positions in 1934 and died March 12, 1936, aged 72.

FLORIDA

Dade County Society and Dr. Mark White.—The legislative committee of the Dade County Medical Society, Miami, voted, April 14, "to keep Dr. Mark White out of Florida," unless he returns to serve a sentence received on his conviction of practicing medicine without a license in the state, a charge to which he is said to have pleaded guilty in June 1936. In February 1937 when it was ascertained that his bulletins "The Thyroid and Other Ductless Glands" were being sent through the mail to physicians, a complaint was filed, but White left that night by plane for Oklahoma and Chicago. According to the records of the Association, White is reported to have graduated from the St. Louis College of Physicians and Surgeons in 1910 and licensed to practice in Iowa in 1918 and in Oklahoma in 1919 by reciprocity with Iowa. In 1919 the Illinois State Department of Registration refused him a license. In 1926 it was reported that he had been convicted in the court of the mayor of Ashland, Ohio, for the illegal practice of medicine and surgery and fined \$100 and costs. In April 1936 an information card returned to the Association headquarters indicated that he was practicing in Florida.

ILLINOIS

Lectures on Obstetrics and Pediatrics.—Two talks by Drs. Charles E. Galloway, Evanston, and John A. Bigler, Highland Park, May 26, will conclude the series of lectures on obstetrics and pediatrics which have been given throughout the state recently. Their subjects are, respectively, "Treatment of Abortions" and "Tuberculosis." When the present series ends, thirty lectures will have been given in groups of six each in Dewitt, Logan, Sangamon, McLean, Menard, Mason, Fulton and McDonough counties. It is hoped to resume the series in the fall. Dr. Harold H. Hill, formerly associate in the department of obstetrics and gynecology, University of Illinois College of Medicine, as field consultant, is in charge of arrangements for these lectures, which are a part of a national program to improve conditions of mothers and children in rural areas.

Chicago

Personal.—Dr. Disraeli W. Kobak has received from Belgium the diploma and insignia of a commander of the Royal Order of St. George in recognition of his work in physical medicine.—Dr. Max Thorek has been made a corresponding member of the National Academy of Medicine of Colombia, South America.

Survey of Air Pollution.—A survey of air pollution in Chicago is under way, with I. A. Deutch, combustion engineer for the city's smoke abatement department, and Alamjit D. Singh, M.S., of the University of Illinois, Urbana, in charge. The tests will show the amount of sulfur dioxide and carbon and other dust particles in the air, it was reported.

Second Annual Hobby Show.—The Chicago Medical Society held its second annual hobby show in the lounge of the Medical and Dental Arts Building, April 7-8. About fifty physicians had entries in the exhibit, which, during the two days, had an attendance of about 1,500 persons. Wednesday evening, Dr. Louis J. Tint gave an illustrated lecture on "Tropical and American Gardens" and "Some Views of the Cascade Range," all photographed in natural colors, and Dr. Frank P. Thompson displayed motion pictures of his recent hunting trip to Africa. Dr. Carl O. Schneider lectured Thursday evening on Bryce Canyon National Park and garden and flower scenes, which were illustrated by direct color photography, and Dr. Julius H. Hess presented a natural color motion picture of Chicago. Among the exhibits were stamp collections, paintings, camera studies and wood work, a collection of mounted specimens of leaves of common weeds that transmit hay fever, and plaster studies in obstetric anatomy.

INDIANA

Officers of State Tuberculosis Association.—Dr. Charles J. McIntyre, Indianapolis, was elected president of the Indiana Tuberculosis Association at its annual meeting in Indianapolis, April 15. Other new officers are Dr. Maurice R. Lohman, Fort Wayne, and Woodson S. Carlisle, South Bend, vice presidents; Dr. Edward M. Amos, Indianapolis, treasurer, and Mrs. William Greemelstacher, Logansport, secretary.

Immunization Campaign in Schools.—A three weeks campaign against diphtheria and smallpox was launched in the thirty-three public and parochial schools of South Bend the first week of May. Records of various classrooms will be kept and awards made to those showing the greatest improvement in percentages of children immunized and vaccinated. The drive is sponsored by the city health department.

Society News.—Dr. Ross C. Ottinger, Indianapolis, discussed the "Importance of Pelvic Examinations" before the Knox County Medical Society in Vincennes, April 13.—The Fort Wayne Medical Society was addressed in Fort Wayne, April 6, by Dr. Ward F. Seeley, Detroit, on "Heart Disease and Pregnancy from the Viewpoint of the Obstetrician."—At a meeting of the Floyd County Medical Society in New Albany, April 9, Dr. Gretchen Irene Polhemus, New Albany, spoke on allergy.

KANSAS

Dr. Earle Brown Goes to Virginia.—Dr. Earle G. Brown, for twelve years secretary and executive officer of the Kansas State Board of Health, Topeka, has resigned to become health officer of Arlington, Va., it is reported. The change was effective May 1. Dr. Brown graduated from Northwestern University Medical School, Chicago, in 1913. He engaged in private practice from 1914 to 1917 and served as health officer of Topeka from 1919 to 1925. He was president of the Conference of State and Provincial Health Authorities of North

America in 1936 and of the Kansas Medical Society in 1927. Dr. Harry R. Ross, head of the division of child hygiene, will serve temporarily as secretary of the board, pending the election of a successor to Dr. Brown.

KENTUCKY

Portrait of Daniel Drake.—The Fayette County Medical Society, Lexington, has acquired a portrait of Dr. Daniel Drake, dean of Transylvania Medical College, Lexington, from 1819 to 1829 and author of a famous treatise on "Principal Diseases of the Interior Valley of North America." The portrait has been for 100 years in the possession of a Carter family in Versailles, descendants of Dr. Joseph C. Carter, for many years an intimate friend of Dr. Drake.

Society News.—Drs. William D. Haggard and William R. Cate, Nashville, addressed the Christian County Medical Society, Hopkinsville, April 20, on "Consideration of Fibroid Tumors of the Uterus" and "The Elderly Thyrocardiac" respectively.—Drs. Joseph A. Bowen, Louisville, and Carl C. Howard, Glasgow, addressed the Muldraugh Hill Medical Society, April 8, in Elizabethtown on "Cause and Effect of Kidney Infection" and "Blood Infections."—Drs. Robert Lyle Motley and Thomas D. Moore, Memphis, Tenn., addressed the Fulton County Medical Society, Hickman, on cardiac edema and lesions of the kidney, respectively.—A symposium on arthritis was presented before the Jefferson County Medical Society, Louisville, April 19, by Drs. Arthur C. McCarty, David E. Jones and Richard T. Hudson.—Dr. Randall Dow Collins, Whitesburg, addressed the Letcher County Medical Society, Whitesburg, March 30, on "Syphilis—A Community Health Problem."

LOUISIANA

Longer Life Week.—The Orleans Parish Medical Society conducted its annual "Longer Life Week" May 17-22, placing special emphasis on cancer. A special meeting of the society the first day of the campaign was devoted to a symposium on malignancy. This year the local dental society cooperated in the campaign and presented a symposium on cancer about the month May 19. At both meetings the March of Time film on cancer was shown. Dr. Edward William Alton Ochsner, New Orleans, was chairman of the Longer Life Week Committee this year. Appendicitis was the theme of the society's program in 1936.

MARYLAND

Conference of Health Boards.—The seventeenth annual conference of health officers and boards of health of Maryland was held at Johns Hopkins School of Hygiene and Public Health, Baltimore, May 14. The speakers included:

Dr. Allen W. Freeman, A Review of Tuberculosis in Maryland.
Dr. Roderick Heffron, Boston, The Massachusetts Pneumonia Program.
Mark Welsh, D.V.M., Maryland Program for Control of Bang's Disease.
Miss Katherine F. Lenroot, chief, U. S. Children's Bureau, Washington, D. C., Federal and State Cooperation in Promoting Maternal and Child Health.
Dr. Leroy E. Burney, U. S. Public Health Service, Washington, D. C., Some Problems in the Control of Syphilis.

Dr. Tillett Goes to New York University.—Dr. William Smith Tillett, since 1930 associate professor of medicine at Johns Hopkins University School of Medicine, Baltimore, has been appointed professor of bacteriology and director of the bacteriologic laboratories at New York University College of Medicine, New York. A native of Charlotte, N. C., and 44 years of age, Dr. Tillett graduated from Johns Hopkins in 1917. From 1922 to 1930, when he joined the staff of his alma mater, Dr. Tillett served as assistant and associate at the Rockefeller Institute Hospital, New York, and during the past year president of the American Society of Clinical Investigation.

MASSACHUSETTS

Sedgwick Lecture.—Selskar Michael Gunn, C.P.H., vice president of the Rockefeller Foundation and director of public health of the foundation in the Far East, delivered the thirteenth William Thompson Sedgwick Memorial Lecture of the Massachusetts Institute of Technology, April 23, on "Public Health Work in China."

Physician on Arctic Expedition.—Dr. Kenneth W. Sewall, resident physician at Massachusetts Memorial Hospitals, has been appointed physician and surgeon to the expedition that Lieut.-Comdr. Donald B. MacMillan will lead to the arctic this summer, according to *New England Journal of Medicine*. The expedition, consisting of thirty-five scientists and students, will sail from Boston on the *Gertrude L. Thayer*, June 19, it is reported. Dr. Sewall graduated from Harvard University Medical School in 1934.

Society News.—The Boston Society for the Advancement of Gastroenterology was addressed, May 7, among others, by Drs. Harry Parks on "Treatment of Patients with Gastro-Intestinal Hemorrhage" and George Levene, "Experience with the Double Oral Method of Cholecystography."—The Harvard Medical Society was addressed in Boston, April 27, by Milan A. Logan, Ph.D., on "The Calcium Salts of Bone" and A. Baird Hastings, Ph.D., "Salt and Water Exchange Between Tissues and Body Fluids."—Dr. Emery A. Rovenstine, New York, discussed "Abdominal Reflex Complicating Anesthesia: Laboratory and Clinical Investigations" before the Boston Society of Anesthetists, April 6.—Dr. Thomas Archibald Malloch, New York, discussed "A Vesalian Miscellany" before a joint meeting of the Boston Medical History Club and the Boston Medical Library, April 26.

Industrial Health Problems.—Sections on industrial health problems and medical service in industry were included in the program of the sixteenth annual Massachusetts Safety Conference at the Hotel Statler, Boston, April 5-6. The following participated in the section on industrial health problems:

Manfred Bowditch, director, Massachusetts Division of Occupational Hygiene, The National Silicosis Conference of 1936-1937.
Herbert I. Miller of the Missouri State Board of Health, Ventilation Requirements in Metal Spraying.
William P. Yant, B.S., director of research, Mine Safety Appliances Company, Pittsburgh, The Occurrence and Effects of Industrial Gases.

Philip Drinker, Ch.E., professor of industrial hygiene, Harvard University School of Public Health, led the discussion. Speakers on medical aid in industry were:

Dr. William E. Browne, Boston, The Neglected Scratch.
Dr. John D. Adams, Boston, The Strained Back.
Dr. Nels A. Nelson, division of communicable diseases, state department of public health, The Relation of Gonorrhea and Syphilis to the Industrial Accident.

MICHIGAN

Max Ballin Memorial Lectures.—Dr. Russell L. Haden, Cleveland, opened the fourth annual series of the Dr. Max Ballin Memorial Lectures, April 28, with a talk on "The Clinical Approach to Hematology." Drs. Elwood A. Sharp and William H. Gordon, both of Detroit, spoke May 5 on "Evaluation of Hematopoietic Drugs" and "Blood Dyscrasias Associated with Specific Lesions in the Throat" respectively. Other speakers in the series, which is sponsored by the North End Clinic, Detroit, include:

Dr. Nathan Rosenthal, New York, May 12, The Purpuras, Hemophilia and Other Hemorrhagic States.
Dr. Raphael Isaacs, Ann Arbor, May 19, Clinical Hematologic Aspects of Disease of the Lymph Glands and Spleen.
Drs. Thomas B. Cooley and Louis D. Stern, both of Detroit, May 26, Anemias of Childhood and Pregnancy, respectively.
Dr. Richard H. Jaffe, Chicago, June 2, Clinical Interpretation of Bone Marrow Studies in Diseases of the Blood.

Society News.—Dr. Reed M. Nesbit, Ann Arbor, discussed "Urinary Tract Infections" before the Genesee County Medical Society in Flint, May 5.—Dr. Bruce H. Douglas, Detroit, discussed "Tuberculosis Case Finding and the Private Physician" before the Washtenaw County Medical Society in Ann Arbor, April 13.—At a meeting of the Oakland County Medical Society, April 7, Dr. Lawrence Reynolds, Detroit, spoke on "Roentgenological Studies of Gastro-Intestinal Diseases."—Dr. Udo J. Wile, Ann Arbor, addressed a joint meeting of the Detroit Pediatric and Dermatology societies, April 6, on "Congenital Syphilis." Dr. Perrin H. Long, Baltimore, addressed the pediatric society, May 5, on "The Treatment of Beta Hemolytic Streptococcal and Other Infections with Sulfanilamide (Prontosil and Prontylin) or Their Derivatives."—Dr. Austin A. Hayden, Chicago, addressed the Berrien-Cass County Medical Society in Benton Harbor, April 21.—At a meeting of the Muskegon County Medical Society, Muskegon, April 16, Dr. Norman R. Kretschmer, Ann Arbor, discussed "Clinical Aspects of Endocrinology."—Dr. William S. Sadler, Chicago, addressed the Calhoun County Medical Society in Battle Creek, April 6, on "Psychiatric Aspects of Medical Practice."

MINNESOTA

Personal.—Dr. Elmer J. Lillehei, Robbinsdale, has been made director of the Hennepin County Tuberculosis Association.—Plans are under way to form a voluntary subscription fund to establish a memorial to the late Dr. Oscar E. Locken, mayor of Crookston.—Dr. David M. Parker, formerly a physician in the CCC, has been appointed health officer of Virginia to succeed Dr. John A. Malmstrom, resigned, according to the *Journal-Lancet*.

Illegal Practitioner Sentenced.—R. A. McHale, Long Prairie, was recently sentenced to four months at hard labor in the Todd County jail, following his conviction on the charge

of practicing healing without a basic science certificate. According to the Minnesota State Board of Medical Examiners, evidence in the trial showed that McHale represented himself as "Dr." McHale and that he told numerous persons he was a chiropractor. The evidence showed that McHale examined patients, prescribed diets, administered manipulation and light treatments and furnished salve and pills for the treatment of diseases, charging some patients \$2 per treatment and others a flat price of \$10.

MISSISSIPPI

Meeting of the Thirteen County Society.—The North-east Mississippi Thirteen-County Medical Society held its first quarterly meeting in Booneville, March 16, with Dr. Luther L. McDougal Sr., Booneville, presiding. The program included:

Dr. Emile Q. Withers, Columbus, Diseases of the Nose and Throat.
Dr. LeRoy B. Brackstone, Iuka, Acute Hemorrhagic Nephritis in Children.
Dr. Isidore Cohn, New Orleans, Differential Diagnosis and Surgical Indications in Splenomegaly.
Dr. John Gould Gardner, Columbia, Infection of the Hand.

Following a banquet, Dr. George A. Hendon, Louisville, discussed "The Public's Relationship with the Medical Profession."

NEW JERSEY

State Medical Election—Dr. Morrison Resigns as Secretary.—Dr. William J. Carrington, Atlantic City, was chosen president-elect of the Medical Society of New Jersey at its annual meeting in Atlantic City, April 28, and Dr. William G. Herrman, Asbury Park, was installed as president. Dr. Alfred Stahl, Newark, was elected secretary to succeed Dr. John B. Morrison, Newark, who resigned after fifteen years' service in the position. Atlantic City was designated as the place for the next annual meeting. Dr. Morrison, who is 71 years of age, graduated from Columbia University College of Physicians and Surgeons in 1895. Dr. Stahl graduated from Baltimore Medical College in 1906; he is 57 years of age. All communications pertinent to the society should be addressed to him at the executive offices, 143 East State Street, Trenton.

NEW MEXICO

Hospital for Crippled Children to Be Dedicated.—The Carrie Tingley Hospital for Crippled Children will be dedicated at Hot Springs, May 29, and is expected to be ready for occupancy about the middle of June. When completed the hospital will have cost about \$800,000, furnished by WPA funds, state aid and the town of Hot Springs. The building is Spanish colonial in style, covering 1.8 acres floor space and so designed that another story may be added. The main section is two stories with the second floor prepared for the use of the staff only. Three wings extend from the main section of combined dining and recreation room, offices and directors' room, and an operating wing has facilities to retain the patient until he has recuperated. Speakers in the dedicatory ceremonies include Governor Clyde Tingley, Postmaster General James A. Farley and Elliott Roosevelt.

NEW YORK

Medical Women's Meeting.—The thirty-first annual meeting of the Women's Medical Society of New York will be held at the Century Club, Rochester, May 24, under the presidency of Dr. Elise S. L'Esperance. Speakers will include:

Drs. Martha E. Howe and Hayes E. Martin, New York, Glossitis Rhombica Mediana.
Dr. Margaret Warwick, Buffalo, Causes of Death in New-Born Infants.
Dr. Marguerite P. McCarthy, Solvay, Pylorus Spasm, an Infantile Allergic Manifestation.
Dr. Martha Brunner-Ornstein, Vienna, Newer Researches in Physical Medicine.

New York City

Appointments at Columbia.—The following appointments to the staff of Columbia University College of Physicians and Surgeons have recently been announced:

Dr. William H. Stewart, to be clinical professor of radiology.
Dr. George Gray Ward, clinical professor of obstetrics and gynecology.
Drs. Albert H. Aldridge and Ralph A. Hurd, assistant clinical professors of obstetrics and gynecology.
Dr. Earl E. Van Derwerker, assistant professor of clinical orthopedic surgery.
Dr. John E. Scarff, assistant professor of neurologic surgery.

Kober Medal Awarded to Dr. Park.—Dr. William H. Park, director emeritus of laboratories of the New York City Department of Health, was awarded the annual George M.

Kober medal by the Association of American Physicians at its annual meeting in Atlantic City, May 5. Dr. Park was cited for his research work in infectious diseases and immunity to them. It was announced that Dr. Rufus Cole, director of hospitals of the Rockefeller Institute, would be the recipient of the medal next year. Dr. Park, who is 74 years of age, officially retired from the department of health laboratories last year. He had been director since 1894. He also retired last year as Herman M. Biggs professor of preventive medicine with the title of emeritus at the New York University College of Medicine.

Society News.—Drs. Walter G. Lough, Herman O. Mosenthal and George J. Heuer presented papers on hypertension at a meeting of the New York Physicians-Yorkville Medical Society, March 24.—The program of the Medical Society of the County of New York, March 22, was devoted to discussion of venereal disease, with the following speakers: Drs. Howard S. Jeck, Abraham L. Wolbarst, Terry M. Townsend, Frederic Bierhoff and Charles Walter Clarke.—Drs. Leo Spiegel and Theodore Rosenthal addressed the Bronx County Medical Society, March 18, on "Modern Treatment of Syphilis" and "Modern Public Health Control of Syphilis" respectively.—Dr. Otho C. Hudson, Hempstead, was chosen president elect of the Associated Physicians of Long Island at its annual meeting recently and Dr. Charles A. Anderson, Brooklyn, became president.

OHIO

University of Cincinnati News.—Dr. Erl A. Baber has been advanced to assistant professor of psychiatry at the University of Cincinnati College of Medicine.—An anonymous gift of \$20,000 has been given to the University of Cincinnati College of Medicine, to be used for equipping an "added isolation unit at the general hospital for a particular purpose."—Dr. Martin H. Fischer gave an "appreciation lecture" in the students series, May 7; his subject was "Form."

Personal.—Dr. Roy C. Rehder, assistant health commissioner of Mansfield, has been made commissioner to succeed Dr. Milard C. Hanson, who has been appointed health officer of Toledo.—Dr. Murray N. Fowler of the staff of the Athens State Hospital has been appointed medical superintendent at the Applecreek Institution for Feeble-minded, succeeding Dr. Lorne W. Yule, who resigned in October 1936.—Dr. Walter M. Simpson, Dayton, was made a member of the Legion of Honor of France during the recent International Congress on Fever Therapy in New York, in recognition of his research on artificial fever.

OKLAHOMA

Society News.—Dr. Erma O. Johnson, Tulsa, addressed the Tulsa County Medical Society, Tulsa, April 12, on "Practical Endocrine Therapy in Gynecology."—The Kingfisher County Medical Society was recently organized with Drs. John T. Anglin, Dover, as president and Frank C. Lattimore, Kingfisher, as secretary.—At a meeting of the Carter County Medical Society in Ardmore, April 5, the speakers were Drs. Robert C. Sullivan, Ardmore, on "Buerger's Disease"; Charles A. Brake, Norman, "Chronic Alcoholism in the Hebeephrenic Stage," and Ben H. Cooley, Norman, "Coronary Thrombosis."—At a recent meeting of the Oklahoma County Medical Society, Oklahoma City, the speakers were Drs. Carroll M. Pounders, on the panel system of medicine in England; Edward C. Mason, physiology of kidney function; Hugh G. Jeter, pathology of nephritis, and Basil A. Hayes, urology as an aid in treatment of nephritic symptoms.

OREGON

New President of State Society.—Dr. Charles E. Sears, Portland, first vice president of the Oregon State Medical Society, was elected president of the society at a meeting of the council, March 24, to succeed Dr. Thomas W. Watts, Portland, who resigned because of ill health. Dr. Watts died March 26.

PENNSYLVANIA

Campaigns Against Diphtheria.—An immunization campaign against diphtheria among children of preschool age was carried on by the Lycoming County Medical Society, May 17-22. Children of parents unable to pay will be immunized the following week, which has been designated "clinic week." It is planned to set up clinics in various centers where members of the society may perform the work. Immunization of school children was begun in Erie County, May 1, as a part of the spring and summer health round up.

Philadelphia

Personal.—Dr. Alfred N. Richards, professor of pharmacology, University of Pennsylvania School of Medicine, has been elected a trustee of the Rockefeller Foundation.

Society News.—Dr. Alphonse R. Dochez, New York, delivered a Mary Scott Newbold lecture at a meeting of the College of Physicians of Philadelphia, May 5, on "Agents of Upper Respiratory Infections."—Dr. Samuel A. Levine, Boston, was the guest speaker at the annual meeting of the Philadelphia Heart Association, April 28, on "Auscultation of the Heart." Dr. David Riesman, chairman of the executive committee, reviewed the year's work. Dr. William D. Stroud was reelected president.

TEXAS

State Medical Election.—Dr. Ernst W. Bertner, Houston, was elected president of the Texas State Medical Association at its annual meeting in Fort Worth recently. Vice presidents are Drs. Craig W. Munter, Fort Worth, Robert B. Touchstone, Lytle, and Harry L. Locker, Brownwood, and Dr. Holman Taylor, Fort Worth, was reelected secretary. The next annual meeting will be held in Galveston.

Personal.—Dr. John W. Tappan, El Paso, has been appointed health officer of the El Paso city and county health unit, succeeding Dr. Thomas J. McCamant. Dr. John W. Brown, Austin, state health officer for the past four years, has been appointed health officer of Houston. Dr. Milton C. Williams, San Marcos, has been appointed health officer of Hays County and Dr. Philip S. Joseph, Alice, reelected health officer of Jim Wells County. Dr. Jesse E. Ross Jr., Henderson, has been named health officer of Rusk County and Dr. Jack E. Frost, DeKalb, of Bowie County.

VIRGINIA

Personal.—Dr. Williamson C. Welburn, Arlington, has been appointed health officer of Arlington County to succeed Dr. Peyton M. Chichester, Clarendon, who has been appointed to the staff of the state health department.—Dr. Irl T. Riggan, Richmond, state commissioner of health, will receive the honorary degree of doctor of science at the coming commencement of the Medical College of Virginia.

Promotions at the Medical College.—The following promotions in the faculty of the Medical College of Virginia, Richmond, were recently announced:

Dr. Emmett H. Terrell to professor of clinical proctology.
Everett H. Ingersoll, Ph.D., to associate professor of anatomy.
Dr. Paul Kimmeltiel to associate professor of pathology.
Dr. Emanuel U. Wallerstein to associate professor of otolaryngology.
Dr. James P. Baker Jr. to assistant professor of medicine.
Dr. Ernst Fischer to associate professor of physiology and pharmacology.
Dr. Andrew Stephens Graham to assistant professor of surgery.
Dr. Randolph H. Hoge to assistant professor of surgery and gynecology.
Dr. Thomas D. Jones to assistant professor of pediatrics.
Dr. Kinloch Nelson to assistant professor of medicine.
Dr. James B. Stone to assistant professor of pediatrics.
Dr. George Z. Williams to assistant professor of pathology.
Dr. John H. Scherer to assistant professor of medicine.
Dr. John Blair Pitts to assistant professor of orthopedic surgery.
Dr. Donald M. Faulkner to associate professor of orthopedic surgery and chief of clinic.
Dr. Henry Page Mauck to professor of clinical orthopedic surgery.

WISCONSIN

Council on Scientific Work.—A council on scientific work has been organized to supersede the program committee of the State Medical Society of Wisconsin. Members of the new council are Drs. William S. Middleton, Madison, chairman; George W. Krahn, Oconto Falls; Henry A. Sincok, Superior; James A. Evans, La Crosse, and Eben J. Carey, Milwaukee.

New Graduate Course.—A series of graduate lectures in obstetrics and pediatrics was begun April 12. A session will be held one afternoon each week for six weeks in Janesville, Racine, Waukesha, Sheboygan and Beaver Dam. Drs. John W. Harris, professor of obstetrics and gynecology, and John E. Goncz Jr., professor of pediatrics, University of Wisconsin Medical School, Madison, are the instructors of the course which is sponsored by the state health department.

Council to Plan Venereal Disease Control.—Governor La Follette has appointed a "planning council" to further a program for the control of venereal disease in Wisconsin. Dr. William F. Lorenz, Madison, is chairman and Mr. J. George Crownhart, executive secretary of the State Medical Society of Wisconsin, is secretary of the council. The members are Drs. Cornelius A. Harper, Madison, state health officer, and Harry M. Guilford, bureau of communicable diseases, state board of health; and all members of the state medical society's committee on venereal diseases, Drs. James C. Sargent, Edward L. Tharinger and William J. McKillip.

all of Milwaukee, Gunnar Gundersen, La Crosse, and Charles W. Giesen, Superior. The work of the council will be to coordinate the forces and advise the governor with respect to developments, participation by state forces and legislation.

GENERAL

Neisserian Society Meeting.—The third annual meeting of the American Neisserian Medical Society will be held in Atlantic City, June 8, at the Hotel Senator. Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will give his presidential address on "Present Needs in the Public Health Control of Gonorrhea," and the guest speaker will be Dr. John L. Rice, health commissioner of New York City, on "The Essential Elements in a Program for Control of Gonorrhea."

American Dermatological Association.—The sixtieth annual meeting of the American Dermatological Association will be held at the Skytop Lodge, Cresco, Pa., under the presidency of Dr. John H. Stokes, Philadelphia. The speakers will include:

- Dr. Andrew M. Davidson, Winnipeg, Man., Use of Quinine Bisulfate in the Treatment of Lupus Erythematosus.
- Dr. George W. McCoy, Washington, D. C., The Communicability of Leprosy.
- Dr. Udo J. Wile, Ann Arbor, Mich., Sex Hormone Studies in Acne.
- Dr. Paul E. Bechet, New York, Deciduous Skin.
- Dr. Robert E. Barney, Cleveland, Zosteriform Leukemia Cutis.

Meetings in Atlantic City.—The medical alumni of the University of Pennsylvania will hold a smoker and vaudeville at 9 p. m. at the Hotel Jefferson, Atlantic City, June 9, and not the Hotel Madison as previously announced. The joint luncheon of the Medical Veterans of the World War and the New Jersey chapter of the Association of Military Surgeons of the United States will be held at the Hotel Ambassador, June 8. The annual dinner of the medical alumni of Northwestern University Medical School, Chicago, will be held Wednesday evening, June 9, at 6:30 at the Traymore Hotel. The annual luncheon of Phi Lambda Kappa Fraternity will be held Wednesday noon, June 9, at the Ritz-Carlton Hotel.

Delay in Publication of Pharmacopeia Supplement.—Changes in plans for the binding of the First Supplement to the Pharmacopeia of the United States, Eleventh Decennial Revision, have caused a slight delay in its appearance, the committee announces. It was planned to issue the supplement in a paper cover enclosed in a spring back binder capable of holding similar supplements in the future. However, it has been decided to bind it in a more substantial but flexible cover. The delay in the release of the first supplement will no doubt necessitate an advance in the date when the new standards are to become official. Orders should be sent to the Mack Printing Company, Easton, Pa., or to any of the regular distributing agencies for the Pharmacopeia. The price will be \$1.

Medical Library Association in Richmond.—The thirtieth annual meeting of the Medical Library Association will be held in Richmond, May 23-26, in the auditorium of the Richmond Academy of Medicine. Among papers to be presented will be "The Value of Old Books in a Medical Library," by Dr. Marvin Pierce Rucker, Richmond; "Plantation Medicine," Miss Mary Louise Marshall, librarian of Tulane University of Louisiana School of Medicine, New Orleans, and "Medicine and Shockoe Hill," Dr. Harry J. Warthen Jr., Richmond. William T. Sanger, LL.D., president of the Medical College of Virginia, will preside at the annual dinner, at which Dr. William W. Francis, Montreal, Que., president of the association, will deliver his official address.

American Gynecological Society.—The sixty-second annual meeting of the American Gynecological Society will convene at the New Ocean House, Swampscott, May 31-June 2, under the presidency of Dr. Frederick J. Taussig, St. Louis. Speakers will include:

- Dr. Lillian K. P. Farrar, New York, Upper Pelvic Floor, and Its Importance in Total Abdominal Hysterectomy.
- Dr. Harvey B. Matthews, Brooklyn, The Continuous Auscultation of the Fetal Heart by Means of An Amplifying Stethoscope (preliminary report).
- Dr. Robert A. Ross, Durham, N. C., Observations Pertinent to Gonadotropic Therapy in Gynecology.
- Dr. Franklin L. Payne, Philadelphia, The Clinical Significance of Endometrial Hyperplasia.
- Dr. Guy L. Hunner, Baltimore, An Unusual Obstetrical Injury, Detaching Bladder and Urethra from the Symphysis Pubis and Causing Complete Epispadias.
- Dr. Henry Close Hesselbine, Chicago, Biologic and Clinical Import of Vulvovaginal Mycosis.

Academy of Pediatrics.—The seventh annual meeting of the American Academy of Pediatrics will be held at the Waldorf-Astoria Hotel, New York, June 3-5. Thursday will be given over to a series of round table discussions on anemia,

asthma, childhood psychiatry, common skin diseases, diabetes, eczema, gonococcal infection, meningococcal meningitis, nephritis, poliomyelitis, sedimentation rate, speech defects, treatment of empyema and vitamins. Dr. Alexis F. Hartmann, St. Louis, will speak Friday morning on "Hypoglycemia in Infancy and Childhood" and Dr. Alfred H. Washburn, Denver, "Diverse Attributes of Healthy Children." Panel discussions will be held Friday afternoon on "Present Status of Active Immunization Against Scarlet Fever" and "Present Status of Active Immunization Against Whooping Cough."

Bronchoscopic Society Meeting.—The American Bronchoscopic Society will hold its twentieth annual meeting at the Marlborough-Blenheim Hotel, Atlantic City, June 2, under the presidency of Dr. Joseph C. Beck, Chicago, who will deliver his address in the afternoon on "Standards in the Practice of Bronchoscopy." In addition to case reports, papers will be read by:

- Dr. Thomas E. Carmody, Denver, Interesting Endoscopic Cases.
- Dr. John D. Kernan, New York, Tuberculous Lesions of the Trachea and Bronchi.
- Dr. John H. Foster, Houston, Texas, Treatment of Laryngeal Papillomatosis.
- Dr. Sobieska S. Hall, Clarksburg, W. Va., Bronchoscopic Aspects of Lung Abscess.
- Dr. Evan G. Galbraith, Toledo, Experimental Bronchial Obstruction.
- Dr. Waitman F. Zinn and William F. Rienhoff Jr., Baltimore, Diagnosis and Treatment of Primary Bronchial Carcinoma.
- Dr. Chevalier Jackson, Philadelphia, The Bronchoscope and the American Bronchoscopic Society and the Technic of Bronchography.

Meeting of Ophthalmologists.—The American Ophthalmological Society will hold its seventy-third annual convention at The Homestead, Hot Springs, Va., June 3-5. Speakers will include:

- Dr. Martin Cohen, New York, Bilateral Metastatic Carcinoma of the Choroid.
- Dr. Frederick T. Tooke, Montreal, Canada, Case of a Melanoma of the Iris with Microscopic Findings.
- Drs. Hans Barkan and Horace Gray, both of San Francisco, The Eye and Diabetes.
- Drs. Samuel Hanford McKee and Francis L. McNaughton, Montreal, Neuromyelitis.
- Dr. Jonas S. Friedenwald and Robert D. Stiehler, Ph.D., Baltimore, The Mechanism of Formation of the Aqueous.
- Drs. Sylvester Judd Beach and William R. McAdams, both of Portland, Maine, Benzedrine-Homatropine Cycloplegia.

At the executive session, Thursday evening, Dr. David Harrower, Worcester, Mass., will read a paper on "The Early Formation of the American Ophthalmological Society."

Mosquitoes Imported on Airplanes.—*Public Health Reports* announces the results of sixty-nine inspections made by officers of the U. S. Public Health Service at Miami during one month. The inspections were made to determine the presence of mosquitoes transported from South America and no insects were found in forty-five instances. In the other twenty-four inspections, fifty-three insects were captured and one escaped. In seven of the twenty-four inspections thirteen mosquitoes were found, ten of which were dead. The maximum number of mosquitoes found during a single inspection was three, of which two were dead. Of the thirteen mosquitoes ten were identified as follows: *Aedes sollicitans*, 1; *Culex*, species unidentified, 1; *Culex quinquefasciatus*, 3; *Culex* inhibitor, 1; *Mansonia indubitans*, 1; *Mansonia titillans*, 3. Three mosquitoes were unidentified. The report points out that, while no yellow fever mosquitoes were discovered on the inspections, the list shows that such mosquitoes might easily be brought into this country by airplanes unless adequate measures are observed to prevent their importation.

Meeting of Ear, Nose and Throat Society.—The forty-third annual session of the American Laryngological, Rhinological and Otolological Society will be held at the Hotel Traymore, Atlantic City, June 3-5. Among others, the following will present papers:

- Dr. C. Coulter Charlton, Atlantic City, Climate and the Upper Respiratory System.
- Dr. Ralph A. Fenton, Portland, Ore., Management of Blood Stream Infections from Mastoiditis.
- Drs. James A. Babbitt and Damon B. Pfeiffer, both of Philadelphia, Myxoma of the Palate and Pharynx, with Report of a Special Case.
- Dr. Edmund Prince Fowler, New York, The Hearing Before and After Radical Mastoidectomy; A Plea for Less Radical Middle Ear Surgery; Fifty Cases, with Audiograms, Clinical and X-Ray Findings.

Dr. Henry Lane Williams Jr., Rochester, Minn., will present the candidate's thesis by title Saturday morning on "Otitic Hydrocephalus." The annual dinner will be held Friday evening.

Society of Clinical Pathologists.—The sixteenth annual meeting and fourth seminar of the American Society of Clinical Pathologists will be held at the Hotel Bellevue-Stratford, Philadelphia, June 2-5. Dr. Roy R. Kracke, Emory University, Ga., will deliver his presidential address Saturday morning on "The Future of Pathology." The principal speaker

at the banquet Saturday evening will be Dr. George P. Müller, Philadelphia, whose subject will be "Surgical Pathology." Speakers will include:

- Dr. Richard P. Custer, Philadelphia, Sternal Biopsy and "Buffy Coat Smears" in the Diagnosis of Aleukemic Leukoses.
- Reuben L. Kahn, D.Sc., Ann Arbor, Mich., The Question of Paradoxical Serological Reactions in Syphilis.
- Dr. Meyer Bodansky, Galveston, Texas, The Determination of Parathormone in the Blood of Pregnant Women.
- Drs. Edward C. Rosenow and Fordyce R. Heilman, Rochester, Minn., Methods of Preparation and Results from Use of Streptococcal Vaccines in the Prevention and Treatment of Respiratory Infections.
- Dr. Roy S. Leadingham, Atlanta, Rat Bite Fever: Report of Five Cases.

Neurological Meeting.—The American Neurological Association will hold its sixty-third annual convention in Atlantic City, June 3-5, under the presidency of Henry H. Donaldson, Ph.D. The speakers will include:

- Drs. Harry L. Parker and Adams A. McConnell both of Dublin, Ireland, Internal Hydrocephalus.
- Dr. Temple S. Fay, Philadelphia, Epidural Ascending Spinal Paralysis (Spiller's Syndrome).
- Dr. Louis Casamajor, New York, A Child Without a Forebrain (preliminary report).
- Dr. Smith Ely Jelliffe, New York, Sigmund Freud as a Neurologist.
- Dr. Tracy J. Putnam, Dr. Paul F. A. Hoefer and Mildred G. Gray, Ph.D., all of Boston, The Experimental Production of "Encephalomyelitis" by the Intravenous Administration of Coagulants.
- Drs. James Norman Petersen and Joseph P. Evans, both of Montreal, The Anatomical End Results of Cerebral Arterial Occlusion (An Experimental and Clinical Correlation).
- Drs. Wilder G. Penfield and Edwin B. Boldrey, both of Montreal, Somatic Motor and Sensory Representation in the Cerebral Cortex of Man as Studied by Electrical Stimulation.

American Radium Society.—The twenty-first annual meeting of the American Radium Society will be held in Atlantic City at the Chelsea Hotel, June 7-8, under the presidency of Dr. Zoe Allison Johnston, Pittsburgh. Among speakers listed are:

- Dr. Henry Schmitz, Chicago, Selection of Form of Treatment in Uterine Myomas.
- Drs. Eugene P. Pendergrass and Philip J. Hodes, Philadelphia, Observations on the Results of Treatment of Breast Carcinoma.
- Dr. Grantley W. Taylor, Boston, Artificial Menopause in Carcinoma of the Breast.
- Dr. Hugh F. Hare, Boston, Cancer of the Thyroid in Children.
- Dr. George C. Wilkins, Manchester, N. H., Methods of Applying Radium Element in the Form of Needles and Tubes.
- Andrew J. Ackerman, D.D.S., New York, Protective Shields in Radiation Therapy of Intra-Oral Cancer.
- Dr. Orville N. Meland, Los Angeles, Treatment of Epitheliomas of the Masolabial Fold.
- Drs. Harry H. Bowing and Robert E. Fricke, Rochester, Minn., Radium Therapy of Vernal Conjunctivitis.

Society News.—Dr. William J. Kerr, San Francisco, was chosen president-elect of the American College of Physicians at the annual meeting in St. Louis, April 19-23, and Dr. James H. Means, Boston, was inducted into the presidency. Vice presidents elected are Drs. David P. Barr, St. Louis; George Gill Richards, Salt Lake City, and William Gerry Morgan, Washington, D. C. The 1938 meeting will be in New York.—Dr. Charles Phillip Miller, Chicago, was elected president of the American Society for Experimental Pathology at its annual meeting in Memphis April 21-24; Dr. Morton McCutcheon, Philadelphia, vice president, and Dr. Paul R. Cannon, Chicago, secretary. The next meeting will be in Baltimore, in conjunction with the Federation of American Societies for Experimental Biology.

National Tuberculosis Association.—The thirty-third annual meeting of the National Tuberculosis Association will be at the Municipal Auditorium, Milwaukee, May 31-June 3, under the presidency of Dr. Esmond R. Long, Philadelphia. The following, among others, will present papers, according to the preliminary program:

- Drs. William H. Ordway, Mount McGregor, N. Y., and Haynes H. Fellows, New York, Fluoroscopy versus Physical Examination in the Detection of Pulmonary Tuberculosis.
- Dr. Miriam E. Bralley, Baltimore, Factors Influencing the Course of Tuberculous Infection in Young Children.
- Dr. Clarence M. Hineks, New York, The Psychotherapy of Rehabilitation of Patients in Tuberculosis Hospitals.
- Dr. Sidney J. Shipman, San Francisco, Bronchial Factor in Cavitation.
- Dr. William W. Bauer, Chicago, Measuring Health Education.
- Dr. Paul P. McCain, Sanatorium, N. C., Tuberculosis in the Negro.

Thursday, June 3, there will be a symposium on the evolution of tuberculosis dispensary control. The speakers will include Drs. Jabez H. Elliott, Toronto; Herbert R. Edwards, New York; Israel Steinberg, New York, and Henry Chesley Bush, Livermore, Calif.

Association for Thoracic Surgery.—The twentieth annual meeting of the American Association for Thoracic Surgery will be at the Hotel Saranac, Saranac Lake, N. Y., May 31-June 1. Dr. Leo Eloesser, San Francisco, will deliver his presidential address on "Bronchostenotic Cavities and Other Closed Foci of Tuberculous Suppuration in the Lung." Monday afternoon an address will be given by Prof. Hans C.

Jacobaeus, Stockholm, Sweden, entitled "Bronchospirrometry and Its Use in Determining Indications for Thoracoplasty in Bilateral Pulmonary Tuberculosis." Other speakers on the program will include:

- Dr. Gabriel Tucker, Philadelphia, Bronchoscopic Aid in the Management of Postoperative Pulmonary Complications.
- Drs. Harry C. Ballon and Alton Goldbloom, Montreal, Chemotherapy in the Treatment of Streptococcus Infections of the Pleura and Chest Wall.
- Drs. Richard H. Overholt and John S. Harter, Boston, The Lung Volume After Thoracoplasty.
- Dr. Herman J. Moersch, Rochester, Minn., Successful Treatment of Carcinoma of the Esophagus by Means of Surgical Diathermy.
- Dr. Frederick R. Harper, Tucson, Ariz., Effect of Phrenic Nerve Interruption on the Gastro-Intestinal Tract.

American Orthopedic Association.—The annual meeting of the American Orthopedic Association will be held in Lincoln, Neb., June 2 and 3 and in Omaha, June 4. Sessions in Lincoln will be at the Cornhusker Hotel and the Nebraska Orthopedic Hospital. Among the speakers will be:

- Mr. Reginald Watson-Jones, Liverpool, England, The Development of Fracture Treatment in Great Britain.
- Dr. Hiram Winnett Orr, Lincoln, Contribution of Orthopedic Surgery to the Lister Antiseptic Method.
- Dr. Dallas B. Phemister, Chicago, Experiences with Massive Bone Graft.
- Dr. Robert V. Funston, Charlottesville, Va., Dashboard Dislocations of the Hip.
- Dr. Robert B. Osgood, Boston, History of Orthopedic Surgery and the American Orthopedic Association.
- Dr. Robert C. Hood, Washington, D. C., Federal and State Care of Crippled Children.

The members will go on a special train Friday, June 4, to Omaha, where a clinical program will be presented by Drs. John P. Lord, Robert D. Schrock and their associates at the University Hospital. In the afternoon there will be a golf tournament at the Happy Hollow Country Club followed by a dinner.

Association for Study of Allergy.—The annual meeting of the Association for the Study of Allergy will be held at the Hotel Traymore, Atlantic City, June 7-8, under the presidency of Dr. Harry L. Huber, Chicago. Speakers will include:

- Drs. Richard A. Kern, Jean Crump and Rudolf L. Roddy, Philadelphia, Scarlet Fever Immunization by Intracutaneous Injection of Scarlatinal Streptococcus Toxin.
- Dr. Lewis Webb Hill, Boston, Sensitivity to House Dust and Goose Feathers in Infantile Eczema: Significance of Specific Allergens.
- Dr. Ralph H. Spangler, Philadelphia, The Leukopenic Index and Differential Counts in a Case of Gastric Ulcer.
- Drs. Elliott T. Thiene and John M. Sheldon, Ann Arbor, The Correlation of the Clinical and Pathological Findings in Bronchial Asthma.
- Dr. Salvatore J. Parlatto, Buffalo, Deficiency of Atmospheric Humidity as a Contributing Factor in Prolonged Asthma.

A round table discussion on fungi will be held Tuesday afternoon. Dr. Ernest L. MacQuiddy, Omaha, will discuss the classification; Oren C. Durham, Chicago, and Drs. Philipp Schonwald, Seattle; Samuel M. Feinberg, Chicago; Grafton Tyler Brown, Washington, D. C., the varieties of clinically important fungi found in the United States; Robert W. Lamson, Los Angeles, culturing and extraction of fungi for testing and treatment; Marion B. Sulzberger, New York, clinical manifestations of sensitivity to fungi; Harry S. Bernton, Washington, D. C., treatment, and Charles Thom, Ph.D., Washington, D. C., general remarks.

Dr. Rufus Cole Retires as Director of Rockefeller Hospital.—Dr. Rufus Cole, since 1909 director, Hospital of the Rockefeller Institute for Medical Research, has announced his retirement on account of age, effective June 30. He will be succeeded by Dr. Thomas Milton Rivers, since 1927 a member of the board of scientific directors of the International Health Division of the Rockefeller Foundation. A native of Rowsburg, Ohio, and 65 years of age, Dr. Cole took his medical degree at Johns Hopkins University School of Medicine, Baltimore, 1899. He served in various capacities at Johns Hopkins Hospital from 1899 to 1907 and at the medical school from 1901 to 1909, when he became director of the Rockefeller hospital. Dr. Cole is a member of the board of scientific directors of the International Health Division and of many national societies. He was president of the Association of American Physicians in 1931 and has been a prolific contributor to medical literature. The University of Chicago conferred the honorary degree of doctor of science on him in 1927. Dr. Rivers was born in Jonesboro, Ga., Sept. 3, 1888. He graduated from Johns Hopkins University of Medicine, Baltimore, in 1915, spending the years until 1918 on the staff of Johns Hopkins Hospital. He joined the teaching staff of the medical school in 1917, leaving in 1922 to become affiliated with the Rockefeller Institute, where he was appointed associate member in 1924 and member in 1927. Dr. Rivers was president of the American Society for Clinical Investigation in 1931 and in 1936 was awarded the honorary degree of doctor of science by Emory University, Atlanta, Ga.

Cooperation Requested in Search for Kidnapers.—The Federal Bureau of Investigation, U. S. Department of Justice, requests the cooperation of the medical profession in the apprehension of the unknown kidnaper of Charles Fletcher Mattson, 10, son of Dr. and Mrs. William W. Mattson of Tacoma, Wash. Below are reproduced two views of an artist's drawing made from oral descriptions of the kidnaper as furnished by the children who were at the home of Dr. Mattson at the time of the abduction, Dec. 27, 1936. The person who kidnaped Charles Fletcher Mattson is described as follows: age, about 30 years; height, 5 feet 7 inches; weight, 145 to 165 pounds; complexion, swarthy; spoke brokenly with slightly foreign accent; appeared to be of southern European extraction; peculiarities: did not stand erect, dimple in chin, high cheek bones, nose appeared to be broken a little below center, had hairy hands. It will be greatly appreciated if you will communicate any information you might have, or later obtain, to the nearest Division of the Federal Bureau of Investigation, U. S. Department of Justice, or to the National Headquarters of the Federal Bureau of Investigation at Washington, D. C., the telephone number of



which is National 7117. A reward of \$10,000 has been authorized by Homer S. Cummings, Attorney General of the United States, for information furnished to any representative of the Federal Bureau of Investigation leading to the identification and apprehension of the kidnaper.

Impostor Impersonates Physician.—It has been established through records of the American Medical Association that an impostor has been practicing medicine for three years in Freer, Texas, using the name of Dr. Bedford F. Floyd Jr., a physician of Memphis, Tenn. In 1935 "Dr. Floyd" was reported in Freer for the fourteenth edition of the American Medical Directory. Later that year he applied for Fellowship in the American Medical Association and was accepted by reason of his membership in the State Medical Association of Texas. Several months later it was discovered that only one Bedford F. Floyd appeared in the files of the Association and that he was a member in Tennessee. As dual membership is not allowed by the By-Laws of the Association, the Dr. Floyd at Freer was asked to explain this duplication. He replied from San Antonio that he was leaving Freer and that he would visit Memphis and clear up the confusion. Inquiry of the Memphis and Shelby County Medical Society revealed that the Dr. Bedford Forrest Floyd of Memphis had lived in Kilgore, Texas, from January 1931 to September 1933 and that he had never lived in Freer. In 1931 he reported to the American Medical Association that his diploma and Tennessee license had been lost and that duplicates were issued. These have since been recovered, he reported in September 1936. The duplicate diploma was returned to the University of Tennessee; the duplicate license was used by him to obtain his Texas license. According to the office of the Texas state board, the Dr. B. F. Floyd of Freer filed information there tallying with the credentials of the Memphis physician, including that of the lost diploma. The secretary of the Brooks-Duval-Jim Wells County Medical Society reported that when the Freer man applied for membership he gave Kilgore as his previous address and the same credentials. Previously he had used the names Earl W. Morris and Calvin Grady. The following description was given by the federal bureau of investigation: age 45, stocky build, weight 192, height 5 feet 8 inches, fair skin, blue-gray eyes, sandy or blond hair, neatly dressed, wearing diamond scarf pin and diamond ring. He has small scars on the right eyebrow and on the upper lip under the nose.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 24, 1937.

The Admission of Women Students to London Hospitals

In a letter to the *Daily Telegraph*, Professor Ryle calls attention to the fact that women are still at some educational disadvantage compared to men, especially during the clinical part of their training. The women medical students at Oxford and Cambridge are not numerous, but the three London hospitals which accept women—the Royal Free Hospital (which is entirely a medical school for women), University College Hospital and King's College Hospital—are able to find room for only a certain proportion of this group. There are in fact only twelve vacancies in London for women who have previously studied elsewhere. In the case of men, all the teaching hospitals (except the Royal Free) welcome students from Oxford and Cambridge in various ways. The contrast in opportunity becomes more pronounced when it is remembered that a considerable number of men and women are not taking University degrees at all. Some nonuniversity trained men, in fact, have all the advantages of the London teaching denied to women with honors from Oxford and Cambridge, or similarly distinguished elsewhere. University College Hospital has a competitive examination, which makes it possible for a limited number of women each year to serve there. Professor Ryle therefore asks Could not some or all of the other nine medical schools in London admit a small fixed number of women annually? He can see no reason, for instance, why Guy's, St. Bartholomew's or St. Thomas's should not encourage women from Oxford and Cambridge of good academic attainments to share the advantages accorded to the men with whom they have already worked on an equal footing for three years. If each school accepted no more than half a dozen women, the present discontent would be relieved.

Replying to this letter, *Guy's Hospital Gazette* states that there are many difficulties to prevent the adoption of Professor Ryle's proposal at Guy's, where he was a well known teacher. The pressure of students is already so great there that every effort should be made to restrict their number. The *Gazette* counters with the question, Can medicine be taught with advantage to a mixture of the sexes? The article states that many aspects of medicine would be difficult to discuss before a mixed audience—at any rate in the frank and intimate manner possible in the wards today.

Professor Ryle's letter has also given rise to correspondence in the *Lancet*. Dr. Norah H. Schuster, a pathologist, welcomes Ryle's view but points out other difficulties. The success of the London schools depends to some extent on athletic prestige, and athletes, Dr. Schuster states, hate to be educated with women. Furthermore, compared with men there is a greater risk of women failing to finish the course or to practice. But Dr. Schuster thinks that the time will come when the hospitals will realize that a superior woman may be worth more to them than an inferior man. She also suggests that the larger hospitals, which are not medical schools, may find it to their advantage to take women. To this Dr. M. E. Shaw, dean of the West London Postgraduate College, replies that the question is receiving the careful consideration of the authorities of the West London Hospital.

The Sterilization of the Unfit

In the House of Commons, Wing-Commander James called attention to the report of the Committee on Voluntary Sterilization. He moved "That the government should give further consideration to the potentialities of voluntary sterilization for

hereditary defectives in accordance with the unanimous recommendations of the Departmental Committee that reported to the Minister of Health on Jan. 8, 1934." The report stated that there were in England and Wales about 300,000 defectives, of whom 200,000 were fit for community life. At present a much smaller proportion than one third were in institutions. The departmental committee recommended that voluntary sterilization should be allowed where a person was a mental defective or had suffered from mental disorder, where a person suffered from or was believed to be a carrier of a grave physical disorder that was transmissible, and where a person was believed to be likely to transmit mental disorder or defect.

Sir A. K. Wood, minister of health, said that the question raised other matters besides health, in some quarters matters of conscience and religious conviction. The number of defectives increased as the general population increased and as the local authorities became more efficient in ascertaining the existence of defectives, but it could be said with authority that there was no proof that the incidence of mental deficiency in this country was increasing. Legislation adopted in other countries was fairly new, and no results of significance could yet be assessed. The lesson learned from happenings abroad was that the advocates of sterilization should carry public opinion with them. A great deal of research was being done in this country on the subject and there was no question that opinion was growing in favor of sterilization, but there was still much conflict of opinion, particularly on religious grounds. The medical profession was by no means unanimous on the matter. It was desirable that ample time should be given for a full consideration of the whole problem and for public opinion to develop. In view of this reply, Wing-Commander James withdrew his motion.

PARIS

(From Our Regular Correspondent)

April 24, 1937.

Leprosy Treated at a Paris Hospital

The Hôpital Saint-Louis has one of the largest services in the world for dermatology and syphilology. It was not surprising, therefore, when a report was read at the March 16 meeting of the Académie de médecine on ninety-five cases of leprosy observed since Dec. 25, 1934, by Charles Flandin and Jean Ragu in their service at this hospital. When they took charge of the service there were only four cases, but the number has risen to twenty-six at the present time. In addition, they have had occasion to examine and follow, either at the hospital or elsewhere in Paris, sixty-nine other proved cases of leprosy. The authors gave the following reasons why so many (ninety-five) have been seen: 1. Every effort was made to use these patients as seldom as possible for teaching purposes, because they are very sensitive about their condition and resent being exhibited. 2. The patients have been assured that professional secrecy would be observed as to the nature of their ailment and that one would not insist on their being interned at this or other hospitals. 3. Such marked improvement followed the intravenous injection of a new composite of chaulmoogra oil and cholesterol (*Comptes rendus de l'Académie des sciences*, Aug. 31, 1936, p. 502), that this attracted many patients who keep well informed as to newer methods of treatment.

The report was made under three headings:

1. Contamination in the French colonies. The majority of the patients were infected in the colonies, either being born or having lived a long time there. The ninety-five cases included twenty-two natives, nine halfbreeds, seventeen white persons born in the colonies, forty-one white persons who had lived a variable length of time in the colonies, and six white persons who had never left France. The origin of the contamination was not difficult to ascertain. In all, there was a history of infection following sexual contacts.

2. Contamination during a short stay in the colonies. This group included individuals who remained a short time in regions in which either leprosy is endemic or it is rare, as in northern Africa. After a period of incubation, of only a few months in most but of years in some, the first clinical evidences appeared and the disease developed by successive exacerbations. The histories of four cases were given in which the stay in the colonies had been four, seven, eight and ten months respectively. The incubation period varied from eight months to twenty-five years. The Hansen bacilli were found in the leprous manifestations in all of these. Three were contaminated in northern Africa, where leprosy is rare except in certain portions of Morocco.

3. Contamination in France. Since 1923, when a case originating in the Parisian region was reported by Jeanselme, the authors were unable to find any case similar to six cases of their own, but they believe that it is more common than is generally supposed. Of six patients observed by Flandin and Ragu, the first had lived since birth (she is now 26 years old) in a Chinese colony in one of the Parisian suburbs; the second, a man of 50, belonged for some time to a hospital corps, during the World War, in which there were many Indo-Chinese; the remaining four had sexual relations with the leprous. The difference, according to the authors, in the incubation period (six months to twenty-five years) depends on how the patients were infected. Those simply living in a leprous environment had much longer incubation periods than those who had frequent sexual relations with the leprous. In the future, one must regard leprosy as an infection which can be found in persons who have never left France.

A Question of Money

In the February Bulletin of the Syndicate of Physicians of the Department of the Seine, in which Paris is situated, appeared an article entitled "A Question of Money." The entire profession in France is organized into syndicates or leagues, one for each of the eighty-six departments. These syndicates are quite independent of the medical societies proper, whose meetings are devoted to the reading of papers in the various branches of medicine. The syndicates are really public relations representatives of the organized profession. Each departmental syndicate has the right to appoint a certain number of its members to a central body or federation of medical syndicates of France, which receives a proportion of the annual dues of its constituent departmental syndicates. In the article referred to, the secretary of the Seine departmental syndicate, Dr. Barlerin, states that the question of how physicians here can earn enough to live is the most vital one at the beginning of 1937.

Even those who had laid aside a sum which seemed sufficient when they should be ready to retire find that, as the result of several devaluations of the franc, their income is inadequate to live on. Paris physicians are particularly hard hit. They see their professional income diminished as the result of various efforts to introduce state medicine, especially social insurance and the unrestricted admission of private patients to public hospitals and dispensaries. An additional burden is the increase in taxes imposed on all professional men, not to speak of the higher cost of maintaining a mode of life which the public expects of medical men in large cities. The Central Federation of Syndicates has asked for a 100 per cent increase of its share of the dues from members of the constituent departmental syndicates. Although this request was voted down by a large majority of the Seine syndicate, there have been a sufficient number of affirmative votes of the proposition by the syndicates of rural departments to impose the raise. This is more of a blow to physicians in larger centers than in country districts, where the members of the profession are less affected by the inroads on their income by social insurance, public hospitals and dispensaries.

New Books on the Use of Poison Gas in War

The almost simultaneous appearance of four books on the use of poison gas in war shows the importance of this question in France. A brief review of each of the books appeared in the *Presse médicale*, March 17.

In the first of the four books, on combat gas, chemical and physiologic properties, treatment and passive defense, by Capt. J. Couillaud, the preparation of every known form of toxic gas is given, as well as its properties and detection by chemical and physiologic methods. Then follows a discussion of the protection of the public as well as the organization of passive defense.

In the second book, on combat gas from the physiologic, medical and military points of view, H. Magne and D. Cordier, as physiologists, are more interested in the symptoms and physiopathology than in the chemical properties. The effects of the various forms of toxic gas on the different organs has been studied experimentally. The study of the physiology of respiration when gas masks are worn receives special attention. The methods of protection are placed in two groups: isolation and filtration.

The third book, by A. Guillaume, tells how to protect against air attacks. A detailed description is given of the methods to be adopted by civilians against the danger of air attacks. A summary follows of the various types of combat gas, the treatment of intoxications and surveillance of shelters and first aid stations.

The fourth book, by Colonel Cot, presents a course for those who have occasion to treat asphyxia in war or peace. The author has organized an excellent resuscitation service for firemen in Paris. A small amount of space is devoted to theoretical considerations of asphyxia and artificial respiration. The first part takes up the treatment of asphyxia in peace time. The second part reviews the methods usually employed for resuscitation and artificial respiration, especially the use of carbon dioxide-oxygen mixture and the author's own method of artificial respiration, which has proved to be efficacious here. The third part describes asphyxias in war, as in the first three books.

BERLIN

(From Our Regular Correspondent)

April 21, 1937.

Increase in Physical Endurance Through Alkalization

Professor Dennig, director of one of the clinics of internal medicine at Berlin University, has studied the interrelation of acids and physical exertion and reported his observations to the Berlin Medical Society. The tests carried out took as their point of departure the fact that work leads to the formation of acids. Previously it has been observed that early exhaustion can be induced by an artificial acidulation. Dennig attempted to demonstrate the converse; namely, that by alkalization of the organism an increased capability can be obtained. He found that recuperation did actually take place more rapidly and that physical labor could be performed over a longer period. Ten persons were subjected to the tests, which were by no means uniform. By a careful arrangement of the tests, errors that could be due to suggestion were avoided. The length of time during which exercise on a treadmill could be maintained was raised under alkalosis to forty-two minutes, whereas previously the subject was completely exhausted after twenty minutes. This favorable effect of alkalosis depends, as Dennig found, on various factors. As a result of the increased arterial carbon dioxide pressure during work the respiratory volume declines, causing a slackening of performance and the sensation of dyspnea. The acidosis produced during work in the main by lactic acid was less, because better neutralized by the previous alkalization. As there is diminished hydrogen ion concentration, the brain and musculature are protected and fatigue is warded off. In addition, quick relaxation follows the suspension of work. After thorough investigation of the manner in

which the optimal artificial alkalosis may be obtained, the substances observed to be most favorable were sodium citrate, sodium bicarbonate and potassium citrate taken twice daily as postprandial powders. If secondary manifestations, diarrhea for example, appear then the dosage should be reduced. The optimal effect is obtained after two or three days. None of the powders ought to be taken within five hours preceding the work. This artificial alkalization must not be carried on for longer than three or four days at a time. After an interval of several days it may be resumed. To avoid a reaction of acidosis, the dosage is decreased gradually before the powder is discontinued. In overdosage there is danger of tetany, but if this condition appears it can be relieved in a few minutes by administration of ammonium chloride. Artificial alkalosis is in some respects the equivalent of a most rigorous training, for in the latter condition there will also be an increase of carbon dioxide pressure in the alveoli which frequently borders on tetany. Alkalosis can also be brought about by a uniform diet (milk, potatoes, vegetables) but this never reaches the level of a medically produced condition. Only soy meal, a food of marked alkalotic properties, if ingested in large quantities (of around 300 Gm.) will induce a condition in any way comparable to alkalosis by medication. Before practical application of these observations is made it will be necessary to make supplementary examinations of various physical phenomena. For example, it is yet to be determined how artificial alkalosis acts if work is continued over longer periods.

Death of Prof. Robert Sommer

The Giessen psychiatrist Robert Sommer, M.D., Ph.D., died February 2 of pneumonia at the age of 72. With him passes one of the original leaders and many-sided innovators in the domain of psychiatry and related specialties. A pupil of Wundt, Sommer became ordinarius in psychiatry at Giessen when only 30 years of age. His work was consistently characterized not only by the zeal for experimental research but by great philosophic and intellectual insight as well. Sommer interested himself in many aspects of his specialty: psychology and esthetics, examination methods of psychopathology, eugenics and study of the family, animal psychology and so on. An especially interesting treatise discussed war and psychic conditions. Sommer early recognized the significance of hereditary factors. In 1925 he organized the German Association of Mental Hygiene, which together with the German Society of Psychotherapy also founded by him had as its objective the waging of a practical campaign against the dangers of mental and nervous diseases.

VIENNA

(From Our Regular Correspondent)

March 26, 1937.

Tularemia in Austria

For about eighteen months there have been observed in Austria isolated cases of the disease first recognized in North America and known as tularemia. Several cases of the ulcerous-glandular variety, a type never before encountered in this country, were recently reported to the Vienna Physicians' Society. Prof. Dr. Kerl had the opportunity to observe a case in which a peasant, aged 51, shot a hare and while drawing the animal cut himself. Subsequently he was stricken with a disorder resembling influenza. Several other peasants of the same region also came down with the same sort of malady and in each case there was a history of a lesion sustained while handling hares. The first case was correctly diagnosed only when a hematogenic examination for tularemia showed positive agglutination. Thereupon treatment of all the other sick men was begun. Most striking was the massive swelling of the axillary lymph glands, whereas only small ulcerations appeared on the fingers and forearm. For the intracutaneous diagnostic test a suitable dilution (1:100 and 1:1,000) is necessary.

Furthermore, Dr. Bsteh has reported a small epidemic of tularemia in a rural district not far from Vienna. There were thirty-four cases, one of which was fatal. It was possible to differentiate several types: the ulcerous-glandular, the ocular, the pulmonary and, in addition, a new anginal type. The last-named began like an influenza, with acute tonsillitis and severe swelling of the cervical glands. Resolution rapidly took place. The incubation period of the disease was from eight hours to eight days. The onset was turbulent and marked by remittent fever. Curiously, a short while prior to this epidemic the district in question had been infested with incredible numbers of field mice. Examination of the viscera in a fatal case of tularemia disclosed that the lungs were normal excepting for congestion; there were degenerative changes in the liver, pus in the axillary lymph nodes and the spleen, and numerous small nodular infiltrations in which resolution was already at hand. *Endothelioid cells and giant polymorphonuclears* were also observed. Streak preparation showed no micro-organisms and no acid-fast rods, a condition that has previously been noted in the literature. There was no eosinophilia but marked leukocytosis.

Prof. Dr. David of the Vienna School of Veterinary Medicine also reported his own studies of tularemia. It was he who with Dr. Pilot described (March 10, 1936) the first case of the disease ever reported in Austria. He believes, however, that for the past twenty years at least there have been cases of tularemia in this country that were not diagnosed as such. The disease is extremely infectious; in spite of all precautions (rubber masks, rubber gloves and rubber gowns) a laboratory infection was reported in Vienna. Whereas in America some 6,000 cases have been reported to date, in Austria only about 200 cases have been recognized and most of these within the last four months. How animals become infected is not clearly understood; flies and ticks probably play an important part as hosts. A majority of the Austrian patients were men, chiefly hunters, dealers in game and pelters. Cases were, however, reported among housewives and other women who had come into contact with diseased rabbits.

Interesting is the observation that the agglutinin content in the blood serum of a tularemia patient will remain abnormally high for years, perhaps for life; the maximal value is reached between the sixth and the eighth week of illness and there is a subsequent decline. Professor David recommends that tularemia be made a reportable disease and that rigorous measures be taken to prevent its transmission.

Wagner-Jauregg Honored on Eightieth Birthday

A few days ago the eightieth birthday of Prof. Julius Wagner-Jauregg was celebrated by a great number of high officials and scientific bodies. The man so honored was the discoverer of the use of malariotherapy in dementia paralytica as well as the initiator of general iodine prophylaxis of cretinism and goiter. The Austrian Society of Neurology and Psychiatry held a special session at Vienna in honor of the occasion. Almost every person of prominence in Austria attended. Professor Pötzl, who succeeded Professor Wagner-Jauregg as head of the clinic, paid appropriate tribute to the achievements of his illustrious predecessor. Fifty years ago Wagner-Jauregg conceived the idea of combating syphilitic infections with artificial hyperpyrexia. This idea resulted from the observation of an insane woman who, after the subsidence of a hyperpyrexial erysipelas, appeared virtually cured. After thirty years of systematic research and testing of various methods of inducing fever in paralytic patients (hot baths, inoculation with the virus of typhoid, recurrent fever, malaria and with tuberculin), he was able finally to bring his malariotherapeutic method to perfection and in 1917 he demonstrated before the Vienna Physicians' Society two patients who had been completely cured of dementia paralytica by the use of this method. His discovery

was the result of profound observation and research. Two pupils of Wagner-Jauregg, Hoff and Silberstein, were subsequently the first to prove that the antisiphilitic defense forces of the organism wax more powerful in direct proportion to the strength of the malarial infection. Malaria bears a similar relation to all other types of bacterial infection. It is an interesting fact that the original stock of *Plasmodium malariae* which was placed at Wagner-Jauregg's disposal in 1917 by Professor Doerr for experimental purposes still remains lively and active after 481 person to person transfers. Moreover, studies of and experimentation with this stock culture of the plasmodium have been responsible for valuable contributions to scientific knowledge.

Wagner-Jauregg will also be remembered as the initiator of goiter prophylaxis in the Alpine regions of Austria. It was he who recommended the admixture of a small amount of potassium iodide to the common kitchen salt (about 1 mg. per kilogram of salt), so that every one in Austria is compelled to use iodized salt, and iodine free salt is to be only had under special circumstances. The results of this general administration of iodide to an entire nation have been most gratifying and they are the object of a painstaking survey undertaken by Wagner-Jauregg himself, assisted by Hausmann. The data gleaned from this survey have only just been published (*Mitteilungen des Volksgesundheitsamtes*, Vienna, 1937, No. 3). It is reported therein, for example, how in a certain mountainous region of Austria, regarded as a typical goiter zone, fully developed goiter among the school children practically disappeared after a sixteen year period during which the population used only iodized salt. Severe goiter had previously been present in 4 per thousand of the school population. In the same sixteen years there was also a 90 per cent decrease in cases of "blähals" (slight enlargement of the thyroid).

Professor Wagner-Jauregg was awarded the Nobel prize in 1927. It has been decided that the Vienna Neurologic Clinic shall henceforth and forevermore be known as the "Wagner-Jauregg Clinic" and, moreover, the special commemorative gold medal that was struck in honor of the neurologist has been made the property of the clinic. It is characteristic of his lifelong aversion to "publicity" that he saw fit to avoid the recent festivities held in his honor.

BELGIUM

(From Our Regular Correspondent)

March 13, 1937.

Creation of an Order of Physicians

In accordance with a resolution passed by the twenty-eighth Congress of Professional Medicine, held at Liège last July, the Executive Committee of the *Fédération Médicale Belge* appointed a commission representing the various specialties. This commission was empowered to frame appropriate legislation for the creation of an "Ordre des médecins" (order of physicians). This order as contemplated will act as an official guardian and arbiter of medical ethics. It will have no opportunity to abuse its authority either by the slightest coercion of any physician in any manner whatever or by the least restriction of legitimate professional prerogatives. An outline of the proposed legislation follows:

An Ordre des médecins is hereby created in Belgium. Its status is that of a civil body. The Ordre des médecins includes in its membership all doctors of medicine, surgery and obstetrics resident in Belgium who are regularly licensed to practice the art of healing. The various councils within the order see to it that all members show a proper respect for the professional traditions of dignity, delicacy and integrity. The councils also serve to defend the honor of the medical profession. The councils are forbidden to interfere in religious, philosophical, political, linguistic and syndical controversies.

The councils are not authorized to regulate the amount of physicians' honorariums or the manner in which these shall be charged, excepting in case of a habitual exaction of exorbitant fees which goes so far as to constitute a breach of professional probity.

The members of the councils, both officers and associates, are elected for a term of four years from among physicians of Belgian nationality who are at least 35 years of age, who have held licenses to practice medicine for at least five years previous to election, and who reside in the provinces.

No member can be reelected for more than one additional consecutive term. The terms of one half of a council's membership will expire at the end of each two years. At the first election one half of the members shall be elected to serve four years, the remainder to serve two years. Each council of the order elects its officers—a president, vice president and secretary—from among its membership.

Each council of the order is assisted in an advisory capacity by the magistrate of a court of first instance who is an appointee of the crown.

There is a superior council, which numbers among its duties the pronouncement of reasoned opinions on questions of a general nature and the collation of the opinions of the various lower councils, all with a view to the establishment of a body of deontologic jurisprudence.

A council of the order is empowered to invoke the following sanctions: admonition, censure, reprimand, suspension from medical practice for not longer than one year, and absolute prohibition from practicing medicine in Belgium. A physician who has been suspended automatically loses his membership in any council and if under temporary suspension he forfeits his right to vote during the period of suspension.

The foregoing sanctions can be invoked thirty days after the accused physician has been summoned to defend himself before the proper disciplinary tribunal. He is permitted to call on one or more of the councils to assist in his defense.

The same rules are followed by the superior council. For suspension or expulsion of a member, a majority vote of two thirds of the council members present is required.

The president of a council of the order, the advisory magistrate and the interested parties may take an appeal from any decision of the council.

The provincial medical committee is apprised of all final sentences of suspension or expulsion.

The record of any disciplinary action must be accompanied by a full statement of the motivating circumstances.

Members of the councils of the order, of the superior council and of the mixed appellate committees are bound to professional secrecy with regard to all matters of which they have ex-official knowledge.

Belgian Congress of Psychiatry

At the opening session of the Belgian Congress of Psychiatry, Minister of Health Vandervelde explained the revised law for the treatment of the insane. The spirit of the new law would tend to integrate the welfare of the mental patient into the system of general welfare. The organized service should be based on (a) an alert medical inspection service possessed of adequate official powers, (b) independent observation units staffed by a competent personnel trained in the most modern technics of investigation, and (c) great flexibility with regard to the admission, release or maintenance of a patient at the Psychiatric Institute. All this assumes a greater confidence on the part of the public authorities and of the public in the physician's understanding of his duty to society. The new legislation would seem to foster the development of unclassified sections for patients whose internment is not legally compulsory.

Among the papers read, that of Rouvroy on "Experimental Studies of the Intelligence of Mental Patients" is particularly

worthy of mention. Most writers who have studied this problem have based their observations on standards established by pedagogic psychology. Rouvroy believes that this approach is faulty on practical application. At the beginning of a psychic disturbance, the old tests reveal most frequently a complete integrity of automatized aptitudes. In this phenomenon lies a source of error, since the tests designed for pedagogic purposes consider as equal values true intelligence and old automatisms. The results, as expressed grossly by a "mental age" or a single figure, fail to represent the actual level of intelligence. It is therefore necessary to differentiate automatic and intellectual action and to make separate evaluations of each. This method represents an advance in that it provides an opportunity for objective evaluation of the patient's intellectual level before the onset of the disturbance.

TREATMENT OF MENTAL DISEQUILIBRIUM ACCOMPANIED BY ANTISOCIAL REACTIONS

Louis Vervaeck reviewed the favorable observations in the first quinquennial report on the extension of the law of social defense to persons of abnormal mentality. Of 1,072 patients conditionally released from psychopathic institutions, 256 (23 per cent) were reinterned. Only 122 (11 per cent) of the latter group were criminal recidivists. The other 113 were reinterned because of inability to adapt themselves to the living conditions arranged for them on the outside; either the mental condition had, according to a psychiatrist's report, become further aggravated or the patients had asked to be returned to an institution of social defense. Dr. Vervaeck outlined the therapeutic measures that seem to him indicated in mental cases that are accompanied by antisocial tendencies. He stressed the value of training the will power and the moral sense, readaptation to a social existence under moral guidance and regular psychiatric control, in a favorable environment.

ARTHRITIS AND ARTHROPATHIES IN NEUROSYPHILIS

Dujardin and Friart exhibited several photographs of syphilitic arthropathies and tabetic osteo-arthropathies with fractures. The pictures were accompanied by a complete study of the reactions in the blood and cerebrospinal fluid in each case. These studies show that the cerebrospinal fluid syndrome disappears on the first day; the hematologic syndrome then disappears at the same rate as the generalized chronic inflammatory manifestations.

ITALY

(From Our Regular Correspondent)

April 15, 1937.

Influenza Epidemic

The Department of Public Health recently held a meeting with Drs. Di Blasi, Frugoni, Morelli and Caronia, all of the University of Rome, to discuss ways and means for controlling the influenza epidemic that is now flourishing in Italy. Rome, with a population of 1,200,000, had an average daily mortality of sixty-one deaths during the last month, eighteen of which resulted from bronchopulmonary diseases. In Milan, with 1,000,000 inhabitants, there were 809 deaths during the last fortnight, 303 of which were caused by bronchopulmonary diseases. In some important cities of different provinces the epidemic is widespread, but the nature of the disease is benign. Complications follow only in the elderly and the mortality rate is low. According to the members of this conference, the evolution of the epidemics does not demand special preventive measures, aside from those already being taken, for controlling the disease.

The Antivenereal Crusade

Statistics on the frequency of venereal diseases in Italy were presented to the Congress of Dermatology and Syphilography recently at Rome. New regulations were promulgated by the Department of Public Health for intensifying the crusade

against venereal diseases. The support given by the government to antivenereal dispensaries will be more substantial than at present. Whenever the personnel of antivenereal dispensaries is not able to carry on serologic, microscopic and laboratory work for diagnostic purposes, the tests will be made without charge at the laboratories of hygiene and public health of the city. The care of the patients at the dispensaries will be given free, regardless of the economic conditions of the patients. Increased use of propaganda for educating the people in antivenereal problems will be an added duty of dispensary personnel. This will be done both by instructing the patients during clinical consultations and by circulation of literature. Municipal physicians must attend courses on the subject, which will be given at the dermatologic clinics of the universities.

Invisible Dermatoses

Dr. Montesano, in a recent issue of *Attualità medica*, reported studies on certain dermatoses that exist for some time before showing themselves on the skin. Cutaneous atrophy appears late in the evolution of syphilis in certain areas of the skin that never before were the seat of syphiloderma. Brocq's pseudo-area of atrophy and alopecia, which develops late in follicular and perifollicular pathologic conditions, and lichenification are also forms of invisible dermatoses. Existence of the latter is manifested sometimes by the presence of pruritus or the appearance of leukoderma following exposure of the skin to the sun. The study of this group of dermatoses is of importance because it is concerned with disorders of the skin in their relation with the organism as a whole. The skin forms a complete system which reacts as a unit to the disturbance of any of its constituents or appendages. The rôle of the skin in the production of immunity and its relation with all organic systems show that the skin lesion is but an aspect of a disease the causal factors of which may be located elsewhere in the organism. The skin is concerned with important functions and reactions. It has been called the "peripheral brain." The study of invisible dermatoses, also called cryptodermatoses, may result in solving several problems of practical and scientific value.

Deaths

Prof. Alberto Lutrario, for the last twelve years head of the department of public health in Italy, died recently. During his administration many improvements in the general hygiene of the city, the establishment of a potable water supply, public baths, new sewer systems and other public commodities and means for the prevention of diseases and of epidemics were made. He was given the gold medal with which men are honored for meritorious work in public health.

Dr. Olimpio Cozzolino, professor of pediatrics at the Bari University, also died recently. He published several articles reporting work performed on the thymus, infantile tuberculosis, rickets, spasmophilia and Barlow's disease. His textbook on pediatrics, the first edition of which was published not long ago, is already in the third edition.

Marriages

NATHAN ANTHONY WOMACK, St. Louis, to Miss Margaret Elizabeth Richardson at Reidsville, N. C., January 23.

WILLIAM ROSARIO FERRARO, Canton, Ohio, to Miss Mary Rose Freschi of Brooklyn, January 9.

ALDWIN GEORGE FUNDERBURK, Moultrie, Ga., to Miss Louise Canipe in Folkston, January 3.

JOHN H. MATHESON to Miss Helen Lucille Baker, both of Des Moines, Iowa, May 21.

GORDON N. BEST to Mrs. Ann Jennings, both of Council Bluffs, Iowa, April 16.

Deaths

Reginald Knight Smith, died at his home in San Francisco, April 18, of coronary occlusion, aged 67. Dr. Smith was born in Newberg, Ala., Sept. 22, 1869. He received the medical degree from the College of Physicians and Surgeons in Baltimore in 1892; later served in the Medical Corps of the U. S. Navy, where he was a lieutenant commander during the Spanish-American War. He had practiced in San Francisco since 1903, and specialized chiefly in obstetrics. His early experience was in the Emanuel Sisterhood Polyclinic and the Fruit and Flower Mission, then in the Mount Zion obstetrical clinic, where in 1910 he became chief. He was instructor in obstetrics at Cooper Medical College during 1908-1909 and later assistant clinical professor of obstetrics at the University of California Medical School. Dr. Smith was a member of the California Medical Association and of the Pacific Coast Society of Obstetrics and Gynecology; a past president of the San Francisco County Medical Society and of the California Academy of Medicine.

Eugene Franklin McCampbell, Columbus, Ohio; Rush Medical College, Chicago, 1912; dean, 1916-1927, professor of preventive medicine, 1913-1927, professor of bacteriology, 1910-1913, associate professor of bacteriology, 1908-1910, and instructor of bacteriology, 1906-1908, Ohio State University College of Medicine; instructor of bacteriology at the Ohio Medical University, 1903-1904; assistant in pathology at the University of Chicago during the summers of 1908-1911; assistant in bacteriology at the University of Wisconsin, 1905-1906; secretary and executive officer of the Ohio State Board of Health, 1912-1916; pathologist to the Columbus State Hospital, 1909-1911; served during the World War; president of the Columbus Academy of Medicine; fellow of the American College of Physicians; member of the staffs of the Grant, Mount Carmel and White Cross hospitals; co-author of "General Bacteriology"; and author of "Laboratory Methods for Study of Immunity"; aged 55; died, May 8, of pneumonia.

James Newell Vander Veer, Albany, N. Y.; Albany Medical College, 1903; member of the House of Delegates of the American Medical Association, 1926-1935; past president of the Medical Society of the State of New York and the Medical Society of the County of Albany; formerly clinical professor of genito-urinary surgery at his alma mater; member of the American Urological Association; fellow of the American College of Surgeons; served during the World War; consulting genito-urinary surgeon to the Memorial Hospital, Albany, Memorial Hospital, Catskill, Mary McClellan Hospital, Cambridge, and the Moses-Ludington Hospital, Ticonderoga; aged 59; died, May 15, of heart disease.

Benjamin Hobson Frayser, Lexington, Ky.; Tennessee Medical College, Knoxville, 1909; formerly associate professor of obstetrics and instructor in anatomy at Lincoln Memorial University Medical Department, and associate professor at the University of the South Medical Department, Sewanee, Tenn.; was commissioned in the medical reserve corps of the U. S. Army and the U. S. Public Health Service; was chief of the medical and surgical services of the Veterans Administration Facility; retired because of physical disability, Jan. 1, 1937; fellow of the American College of Physicians; aged 49; died, March 5, of carcinoma of the descending colon.

Gilbert Langdon Bailey, Lexington, Ky.; Miami Medical College, Cincinnati, 1893; also a lawyer; instructor in various branches at his alma mater, 1897-1905; served as a director of a hospital in Germany during the World War; at one time clinical instructor in orthopedic surgery, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois; for eight years chairman of the county school board; at one time on the staff of the Oak Park (Ill.) Hospital; orthopedic surgeon to the Cook County Hospital, Chicago, 1908-1912; aged 65; died, March 5, in St. Joseph's Hospital, of coronary occlusion.

William Gammon, Galveston, Texas; University of Texas School of Medicine, Galveston, 1893; formerly associate professor of pediatrics and medicine at his alma mater and at various times demonstrator of pathology, associate in pathology, lecturer in medical jurisprudence and lecturer in dermatology; veteran of the Spanish-American War; fellow of the American College of Surgeons; superintendent of the John Sealy Hospital, 1894 to 1896; surgeon to St. Mary's Infirmary; aged 65; died, March 9, of bronchopneumonia.

Charles Chauncey Duryee, Schenectady, N. Y.; Albany (N. Y.) Medical College, 1881; in 1892 president of the Medical Society of the County of Schenectady; mayor of Schenectady.

1898-1899 and 1910-1911; formerly health officer of Schenectady, member of the state board for criminals and feeble-minded, and sanitary supervisor of the state department of health; at various times consulting surgeon and consulting physician to the Ellis Hospital; aged 78; died, March 18, of diabetes mellitus and cerebral thrombosis.

Henry Allison Ingalls • Roswell, N. M.; University of Texas School of Medicine, Galveston, 1898; past president of the New Mexico Medical Society and of the Chaves County Medical Society; veteran of the Spanish-American and World wars; fellow of the American College of Surgeons; professor of military hygiene, New Mexico Military Institute; visiting surgeon to St. Mary's Hospital; aged 68; died, March 29.

Irving Herbert Eddy • Glendale, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; at one time instructor in gynecology at his alma mater and associate professor of gynecology at the Loyola University School of Medicine; associate in gynecology at the Chicago College of Medicine and Surgery, 1915-1917; aged 59; hanged himself, March 1.

Samuel Berardelli, Weirton, W. Va.; Loyola University School of Medicine, Chicago, 1926; member of the West Virginia State Medical Association; secretary-treasurer of the Hancock County Medical Society; past president of the board of education; aged 35; died, March 3, in the Eye and Ear Hospital, Pittsburgh, of arteriosclerosis and chronic nephritis.

Herman Jarecky, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; member of the Medical Society of the State of New York, and the American Academy of Ophthalmology and Oto-Laryngology; consulting otorhinolaryngologist to the Sydenham Hospital; aged 73; died, March 14, in a local hospital.

Walter James Clarke, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the Medical Society of the State of New York; on the staff of the American Social Hygiene Association; aged 72; died suddenly, March 8, of coronary thrombosis.

Edith Esty Woodill, Waltham, Mass.; Tufts College Medical School, Boston, 1904; member of the Massachusetts Medical Society and the New England Society of Psychiatry; on the staff of the Walter E. Fernald State School; died, February 27, in Brookline, of carcinoma of the sigmoid with metastasis to the liver.

Rollin Hills • Brooklyn; Cornell University Medical College, New York, 1905; was chief of the tuberculosis bureau of the board of health for the Bay Ridge section; on the staffs of the Norwegian-Lutheran Deaconesses' Home and Hospital and the Victory Memorial Hospital; aged 53; was found dead, March 14.

Alfred Stocker, Rock Island, Ill.; Barnes Medical College, St. Louis, 1900; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; served during the World War; aged 67; died, March 20, in St. Anthony's Hospital, of coronary thrombosis.

Norman Clarence Williams, Bandelier, N. M.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1898; member of the Colorado State Medical Society; formerly a practitioner in Denver and Florence, Colo.; aged 61; died, February 3, in Santa Fe, of acute nephritis.

Charles Henry Clifford, Braddock, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; school physician, and member of the board of health of North Braddock; aged 75; died, March 1, of chronic nephritis and uremia.

Ramey M. Baker • Sturgis, S. D.; University of Nebraska College of Medicine, Omaha, 1931; president and formerly secretary of the Black Hills District Medical Society; aged 30; died, March 2, in a hospital at Rapid City, of streptococcal septicemia, pneumonia and cellulitis.

Frank Hinchman Clark, Brooklyn; Long Island College Hospital, Brooklyn, 1887; aged 75; on the staff of the Adelphi Hospital and on the courtesy staff of the Prospect Heights Hospital, where he died, March 3, of hypertrophy of the prostate and chronic myocarditis.

Elmer Ellsworth Ellis, Brookfield, Vt.; University of Vermont College of Medicine, Burlington, 1895; member of the Vermont State Medical Society; formerly state senator; for many years health officer and school director; aged 71; died, March 6, of heart disease.

William B. Stokes, Farmington, Ky.; University of Louisville Medical Department, 1890; member of the Kentucky State

Medical Association; past president of the Graves County Medical Society; aged 75; died, February 27, in the Mayfield (Ky.) Hospital, of pneumonia.

Jesse S. Coontz, Leon, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1903; member of the Iowa State Medical Society; past president and secretary of the Decatur County Medical Society; aged 61; died, February 28, of malignant lymphoma.

Andrew Fay Currier, Cheshire, Conn.; Yale University School of Medicine, New Haven, 1880; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; aged 85; died, March 4, of septicemia and hypertrophy of the prostate.

James Wilmot Lawrence • Malden, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1893; on the staff of the Malden Hospital; aged 74; died, March 4, of heart disease while aboard ship homeward bound from a vacation in Jamaica.

Rosina Rehner Wistein, Cedar Rapids, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Iowa State Medical Society; aged 69; died, February 23, of diabetes mellitus and chronic nephritis.

John Augustus Robert Moseley, Jefferson, Texas; Memphis (Tenn.) Hospital Medical College, 1892; member of the State Medical Association of Texas; president of the Cass-Marion Counties Medical Society; aged 68; died, February 26, of myocarditis.

Charles J. Kneer, Oaklandon, Ind.; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; on the staff of the Methodist Episcopal Hospital, Indianapolis; aged 61; died, March 3, of cardiovascular renal disease.

Edward H. Salmon, Jersey City, N. J.; Baltimore Medical College, 1907; member of the Medical Society of New Jersey; for many years chief of the division of communicable diseases of the city health department; aged 61; died, February 28, of epithelioma.

Martin Leo Connors, Pittston, Pa.; Temple University School of Medicine, Philadelphia, 1919; served during the World War; formerly medical examiner for the city schools; on the staff of the Pittston Hospital; aged 45; was found dead, March 9.

James D. Schmied, New Martinsville, W. Va.; College of Physicians and Surgeons, Baltimore, 1892; formerly mayor; served during the World War; on the staff of the Wetzel County Hospital; aged 67; died, February 24, of cerebral hemorrhage.

Harris Alonzo Bolton • Warm Springs, Mont.; College of Physicians and Surgeons, Baltimore, 1910; member of the American Psychiatric Association; medical superintendent of the Montana State Hospital; aged 53; died, March 17, of pneumonia.

Jesse Robert Haley, Brookfield, Mo.; University of Kansas School of Medicine, Kansas City, 1926; member of the Missouri State Medical Association; aged 35; died, February 14, in a hospital at Kansas City, of streptococcus septicemia.

Emery Oliver Starling Brown, Lorain, Ohio; Starling Medical College, Columbus, 1890; member of the Ohio State Medical Association; aged 67; for many years on the staff of St. Joseph's Hospital, where he died, March 4, of pneumonia.

William Thomas Williams, Natchitoches, La.; University of Louisiana Medical Department, New Orleans, 1882; past president of the city board of health and city physician; aged 78; died, February 17, of heart disease and arteriosclerosis.

Allen Lincoln Walton, Upper Sandusky, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; formerly member of the state legislature; aged 73; died, February 28, of influenza and pneumonia.

Agnes Douglas Craine, Smiths Falls, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1888; L.R.C.S., Edinburgh, 1889, L.R.C.P., Edinburgh, 1889 and L.F.P.S., Glasgow, 1889; aged 75; died, February 26.

Edward Vincent Colbert, Albany, N. Y.; Albany Medical College, 1890; member of the Medical Society of the State of New York; for many years medical examiner for the army and navy recruits; aged 70; died, March 2, of pneumonia.

Irvin M. Wertz, Hagerstown, Md.; Baltimore Medical College, 1903; member of the Medical and Chirurgical Faculty of Maryland; mayor of Hagerstown; on the staff of the Washington County Hospital; aged 64; died, February 23.

James Mullins Grantham © Tampa, Fla.; Baltimore Medical College, 1898; formerly health officer of Tampa; aged 63; on the staffs of St. Joseph's and the Municipal Hospital, where he died, February 26, of a cerebral hemorrhage.

Ralph Cambren Henderson © Erie, Kan.; Kansas City Medical College, 1899; University of Kansas School of Medicine, Kansas City, 1906; served during the World War; aged 61; died, February 17, of acute myocarditis.

Thomas D. Shotts, San Angelo, Texas; Atlanta Medical College, 1915; member of the State Medical Association of Texas; medical director of the San Angelo Sanatorium; aged 48; died, February 21, of heart disease.

Frederick A. Churchill, Seattle; Chicago Homeopathic Medical College, 1882; formerly member of the city board of health, and board of education; aged 80; died, March 5, in the Maynard Hospital, of bronchial asthma.

Ira Daniel Hasbrouck, Washington, R. I.; Albany (N. Y.) Medical College, 1896; member of the Rhode Island Medical Society; township health officer; school medical inspector; aged 72; died, March 2, of pneumonia.

Marion Marsh, Muskegon, Mich.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; aged 80; died, February 21, in the Hackley Hospital, of cerebral hemorrhage.

Conrad Emil Thomas, St. Joseph, Mo.; Keokuk (Iowa) Medical College, 1891; member of the Missouri State Medical Association; aged 69; died, February 26, in the Missouri Methodist Hospital, of pneumonia.

Isaac Kingsley Givens, Norfolk, Va.; Howard University College of Medicine, Washington, D. C., 1931; aged 29; died, February 9, in the Jeanes Hospital, Philadelphia, of osteogenic sarcoma of the cranial bones.

Warren V. Philbrick, Worcester, Mass.; College of Physicians and Surgeons, Baltimore, 1885; aged 87; died, March 31, in St. Vincent's Hospital, of injuries received when he was struck by an automobile.

George Leander Bayton, Philadelphia; Howard University College of Medicine, Washington, D. C., 1906; member of the Medical Society of the State of Pennsylvania; aged 59; died, March 4, of pneumonia.

Irvin Phillips, Picher, Okla.; Beaumont Hospital Medical College, St. Louis, 1887; member of the Oklahoma State Medical Association; aged 79; died, February 27, near Buffalo, Mo., of cerebral hemorrhage.

Walter Taylor Miller, Fort Payne, Ala.; Birmingham Medical College, 1907; member of the Medical Association of the State of Alabama; aged 52; died, February 27, of pulmonary tuberculosis.

Harold Altin Winter, Houston, Texas; University of Tennessee College of Medicine, Memphis, 1917; aged 44; was killed, February 22, when the automobile in which he was driving was struck by a train.

Joseph Edgar Bates, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1922; member of the American Association of Pathologists and Bacteriologists; aged 41; died, February 21.

Samuel L. Laswell, Alma, Ill.; Central College of Physicians and Surgeons, Indianapolis, 1898; member of the Illinois State Medical Society; aged 62; died, February 26, of cerebral hemorrhage.

Stanton Albert McCool, Seneca, Kan.; Ensworth Medical College, St. Joseph, Mo., 1908; member of the Kansas Medical Society; aged 54; was killed, February 6, in an automobile accident.

Noah Jefferson Goshorn, Washington, Ind.; Medical College of Ohio, Cincinnati, 1874; aged 88; died, March 31, in the Davies County Hospital, of injuries received in an automobile accident.

Alexander Hamilton Brown, Little Rock, Ark.; Illinois Medical College, Chicago, 1904; aged 62; died, March 1, in the United Friends Hospital, of a bullet wound inflicted by a burglar.

Edward Bridges, Sonestown, Pa.; Jefferson Medical College of Philadelphia, 1929; member of the Medical Society of the State of Pennsylvania; aged 35; died, March 1, of pneumonia.

Wray Adla Yoder, Buffalo, Wyo.; University of Nebraska College of Medicine, Omaha, 1929; aged 36; died, February 19, in the Sheridan County Memorial Hospital, Sheridan, of scarlet fever.

Willard Curtis Rank, Newark, Ohio; Miami Medical College, Cincinnati, 1892; formerly health officer and member of the board of education; aged 77; died, February 20, of influenza.

John Ellsworth Smith, Kansas City, Kan.; Medico-Chirurgical College of Kansas City, 1899; served during the World War; aged 68; died, February 22, of cerebral arteriosclerosis.

Adalbert Fenyes, Pasadena, Calif.; Medizinische Fakultät der Universität Wien, Austria, 1889; aged 74; died, February 22, of carcinoma of the tongue and cheek and cervical glands.

Reilly J. Alcorn, Grand Coulee, Wash.; Central Medical College of St. Joseph, Mo., 1898; also a druggist; aged 68; died, February 21, in Los Angeles, of cerebral thrombosis.

William A. Hampton, Denver; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 87; died, February 6, of arteriosclerosis, bronchopneumonia and chronic prostatitis.

Eli H. Bradford, Rock Island, Ill.; Chicago Homeopathic Medical College, 1886; member of the Illinois State Medical Society; aged 75; died, March 3, of cardiorenal disease.

Lewis E. Clark, Mansfield, Ill. (licensed in Illinois in 1889); aged 90; died, March 5, in the Mercy Hospital, Urbana, of an embolism, resulting from a hip fracture received in a fall.

Harry W. Uffelman © York, Pa.; College of Physicians and Surgeons, Baltimore, 1907; aged 53; was found shot and killed, February 5, on the desert outside of Bisbee, Ariz.

Henry Martyn Chance, Philadelphia; Jefferson Medical College of Philadelphia, 1881; aged 81; died, February 19, of uremia, hypertrophy of the prostate and arteriosclerosis.

Ralph Ruthwan Shaheen, Flint, Mich.; Loyola University School of Medicine, Chicago, 1936; on the staff of the Hurley Hospital; aged 28; died, February 25, of diphtheria.

Henry Watters © Newton, Mass.; Boston University School of Medicine, 1905; on the staff of the Newton Hospital; aged 55; died, February 19, of coronary thrombosis.

Charles Franklin Hope © Shoals, Ind.; Medical College of Indiana, Indianapolis, 1896; served during the World War; aged 69; died suddenly, March 8, of angina pectoris.

Robert McKown Higley Cotton, Sioux City, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1875; aged 87; died, February 1, of senility.

Madison Lafayette Reed, Tilden, Miss. (licensed in Mississippi in 1882); aged 84; died, February 24, at the Gilmore Sanitarium in Amory, of carcinoma of the rectum.

Jay Morehouse Blackman, Quincy, Mich.; Grand Rapids (Mich.) Medical College, 1898; Detroit Homeopathic College, 1900; aged 63; died, March 8, of heart disease.

John Thomas Middleton, Edinburg, Ind.; Medical College of Ohio, Cincinnati, 1890; bank president; aged 75; died, February 28, in Key West, Fla., of heart disease.

William Seward Manuel, Portsmouth, N. H.; University of Vermont College of Medicine, Burlington, 1885; aged 75; died, February 18, at Rye, of cardiac asthma.

Columbus C. Sheets, Ellsinore, Mo.; American Medical College, St. Louis, 1889; aged 75; died, February 23, of bronchopneumonia and cerebral hemorrhage.

Lydia Stockwell, Atchison, Kan.; Ensworth Medical College, St. Joseph, Mo., 1897; aged 89; died, February 26, in the Atchison Hospital, of cerebral hemorrhage.

James C. Hughes, Boston; Middlesex College of Medicine and Surgery, Waltham, Mass., 1923; aged 41; was found dead, February 23, of acute dilatation of the heart.

Joseph Addison Lipscomb, Memphis, Tenn.; Medical College of Virginia, Richmond, 1865; Civil War veteran; aged 94; died, February 23, of bronchopneumonia.

Henry Walter Krohn, Kane, Ill.; Rush Medical College, Chicago, 1891; aged 69; died, February 23, at Our Savior's Hospital, Jacksonville, of pneumonia.

Richard Lafayette Miller, Florala, Ala.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895; aged 83; died, February 22, of chronic myocarditis.

Othello L. Deitch, Indianapolis; Medical College of Indiana, Indianapolis, 1890; aged 72; died, February 27, in the Methodist Hospital, of a cerebral hemorrhage.

John W. Hodge, Niagara Falls, N. Y.; New York Homeopathic Medical College, 1881; aged 85; was found dead in bed, February 18, of coronary occlusion.

Adoniram B. Darling, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1912; aged 51; died, February 2, of influenza and endocarditis.

Frederick C. Barker, Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1907; aged 53; died, February 28, of coronary occlusion.

Ella Maud Gray, Des Moines, Iowa; Physio-Medical College of Indiana, Indianapolis, 1893; aged 76; died, February 21, at Los Angeles, of arteriosclerosis.

Correspondence

CONTRACEPTIVE ADVICE, DEVICES AND PREPARATIONS

To the Editor:—The April 3 issue of THE JOURNAL carried an editorial discussing the recent decision of the Circuit Court of Appeals for the Second Circuit in the case of *United States v. One Package* (86 F. [2d] 737 [1936]) and taking issue with the interpretation accorded to that case by the National Committee on Federal Legislation for Birth Control, Inc. Unambiguously entitled "Contraceptive Advice, Devices and Preparations Still Contraband," the editorial derogates the importance of the case which the National Committee has hailed as a significant victory for medical workers in the field of contraception.

The case involved the legality under the tariff act of 1930 (the correct statutory citation is 19 U. S. C. A. No. 1305; in the editorial it was incorrectly given as 18 U. S. C. A. No. 396) of a physician's importing pessaries for use in her practice. The court decided that, despite the existence of a flat prohibition of the importation of "any article whatever" for the prevention of conception, such importation was legal if the importation was for a legitimate purpose, the legitimate purpose in this case being the declared intent of an accredited physician to use the pessaries in the course of her practice to protect health and preserve life. Of the decision, the editorial asserts (1) that "outside its own circuit" it "is not binding but is only of persuasive influence" and (2) that the decision "has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign or interstate commerce or the use of the mails." The inference is that the recently asserted freedom of the medical profession from the crippling bans of obscenity statutes is chimerical and that the decision of the Second Circuit Court is of only passing importance outside the states of New York, Connecticut and Vermont, which are within its jurisdiction. For the rest, the editorial intimates that physicians are still under a disability to avail themselves of contraceptive techniques.

These editorial conclusions rest on several basic misconceptions of fact. At the present time there is every indication that the disabilities of the medical profession in the field of contraception have been dissipated so far as both federal and state laws are concerned.

AS TO FEDERAL LAW

It is true that the decision of the Circuit Court of Appeals for the Second Circuit standing alone would be of only "persuasive" significance. But it does not stand alone. In the first place, two other circuit courts of appeals have clearly taken the same position of liberal construction as that adopted by the court for the second circuit: the Circuit Court of the Sixth Circuit in the case of *Davis v. United States* (62 F. [2d] 473 [1933]) and the Circuit Court of the Seventh Circuit in the case of *Bours v. United States* (229 Fed. 960, 964 [1915]). Together the sixth and seventh circuits comprise Ohio, Kentucky, Tennessee, Michigan, Illinois, Indiana and Wisconsin. Thus, three federal appellate courts, all very highly regarded, are standing together, and it is very unlikely that any other circuit court will disagree with the conclusions they have reached, especially since in the construction of federal statutes conformity of the various circuits is always sedulously strived for and almost always achieved. There has been no hint of dissension.

In the second place, the editorial fails to point out that the solicitor general openly signified his intention not to seek a review by the United States Supreme Court of the decision of the Second Circuit, and no appeal can now be taken. The decision thus stands as the last word on the subject. The central law enforcement authorities have in effect committed

Gaines L. Coates, Pittsburg, Calif.; California Medical College, San Francisco, 1896; aged 64; died, February 3, of chronic myocarditis and bronchopneumonia.

Harry G. Spurrier, Brookeville, Md.; University of Maryland School of Medicine, Baltimore, 1889; aged 70; died, February 12, of coronary thrombosis.

Alfred Thomas Triplett, Fort Worth, Texas; Physio-Medical College of Texas, Dallas, 1903; aged 78; died, February 27, of coronary occlusion.

Allen C. Canfield, Toledo, Ohio; Physio-Medical College of Indiana, Indianapolis, 1882; aged 81; died suddenly, January 29, in his home near Rossford.

Robert Edward Harris, Kingston Springs, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; aged 72; died, February 13, in Nashville.

William Cornelius Horn, Pennville, Ind.; Miami Medical College, Cincinnati, 1880; aged 83; died, February 27, of diabetes mellitus and prostatitis.

Carl Gustav Kroning, St. Charles, Minn.; University of Minnesota Medical School, Minneapolis, 1933; aged 31; died, February 22, of hypertension.

Charles Winter Woods, Jerome, Ariz.; Eclectic Medical College of the City of New York, 1882; aged 78; died, February 11, of lobar pneumonia.

Edward Augustus Bemis, Batavia, Wis.; Chicago Medical College, 1888; aged 72; died, February 23, of arteriosclerosis and hypostatic pneumonia.

Oscar E. Glover, Bernice, La.; Kentucky School of Medicine, Louisville, 1896; aged 64; died suddenly, March 3, of coronary thrombosis.

Elmer G. Kriebel, Norristown, Pa.; Jefferson Medical College of Philadelphia, 1894; aged 69; died, February 19, of coronary occlusion.

Elmer Joseph MacDonald, Boston; Medico-Chirurgical College of Philadelphia, 1898; aged 64; died, February 26, of bronchopneumonia.

Alvin P. Dewey, Elgin, Ill.; Rush Medical College, Chicago, 1884; aged 77; died, March 30, of chronic myocarditis and hypertension.

George Everson Jr., Brooklyn; Dartmouth Medical School, Hanover, N. H., 1885; aged 79; died, March 6, of coronary thrombosis.

Hudson Ralph Willse, Westfield, N. Y.; University of Buffalo School of Medicine, 1900; aged 61; died, February 27, of myocarditis.

George L. Summers, Huntington, W. Va.; Eclectic Medical Institute, Cincinnati, 1891; aged 68; died, February 2, of coronary disease.

Charles F. Howard, Buffalo; University of Buffalo School of Medicine, 1878; aged 82; died, February 14, of carcinoma of the prostate.

George T. Armstrong, Osceola, Iowa; College of Physicians and Surgeons, Keokuk, 1885; aged 74; died, March 3, of influenza.

Edward John Richstein, Mesa, Ariz.; St. Louis University School of Medicine, 1903; aged 56; died, February 25, of influenza.

Ben P. Sanders, Chilhowie, Va.; Medical College of Virginia, Richmond, 1880; aged 81; died, February 6, of senile dementia.

James B. Gurley, Loganville, Ga.; Atlanta Medical College, 1893; aged 75, died, February 23, of nephritis and arteriosclerosis.

Sergey Nikolaevich Baryborov, San Francisco; University of Moscow, Russia, 1908; aged 56; died, February 8, of coronary sclerosis.

Meyer Jacobstein, New York; Long Island College Hospital, Brooklyn, 1909; aged 65; died, February 17, of heart disease.

Charles L. Muhleman, Parkersburg, W. Va.; Homeopathic Hospital College, Cleveland, 1882; aged 82; died, February 13.

Howard Webster Knight, Saco, Maine; Dartmouth Medical School, Hanover, N. H., 1899; aged 78; died in February.

G. W. Yates, Hector, Ark. (licensed in Arkansas in 1905); aged 67; died, February 18, of cerebral hemorrhage.

James B. Funk, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1884; aged 78; died, in March, of uremia.

Samuel B. Smith, Cleveland; Ohio Medical University, Columbus, 1900; aged 66; died, February 3.

themselves to accept it as final and consequently to abide by its terms. On the basis of the decision, new instructions have issued to customs officials from Washington, calling it to mind and prescribing a new procedure whereby physicians or their duly constituted agents may by the presentation of an affidavit of legitimate purpose secure the passage through the customs of contraceptive materials.

In the light of these facts and adjudications, the fear that physicians will run afoul of federal law if they use the mails or the channels of interstate or foreign commerce to ship contraceptive materials or information in the course of their regular medical practice appears to be totally unwarranted.

AS TO STATE LAW

To state that the decision "has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign and interstate commerce or the use of the mails" is to slur over a vital exception and to disregard the past effect of federal decisions of this nature on state courts. In forty of the forty-eight states, physicians are and have been free to act in the field of contraception. Of these forty, some do not have laws on the subject of contraception at all, others have laws regulating only the advertising of contraception; still others forbid the giving of advice and the selling of materials but except physicians from their prohibition. In these forty states the major legal obstacle to the proper functioning of doctors in the field of contraception was the federal law. In rural and outlying areas, lack of access to the mails and the ordinary channels of interstate transportation, often the only source of supply, may be crippling to the point of annihilation. A ruling which tends to an easier transmission of contraceptives to physicians has something vital to do with the functioning of public and private health agencies within the confines of a single state. Moreover, as to the eight states which flatly prohibit activity in the contraceptive field, the ruling is not by any means without significance. Where federal and state statutes are similar in purport, state authorities have consistently patterned their interpretations on the holdings of the federal judiciary. No book cleared through the federal customs as free from taint of obscenity has ever been made the basis for a conviction on the grounds of obscenity under a similar state statute in a state court; rarely if ever has such a book been subsequently made the basis of a prosecution although previously suspect or attacked by state law enforcement agencies. For example, although the book "Ulysses" by James Joyce had been previously made the subject of prosecution under New York law, once it was cleared through the customs by the holding of a federal court it was never again challenged. True that the eight states which have absolute and unconditional bans on contraception may legally refuse to be influenced by a federal decision; one of them, Massachusetts, however, had even before the recent decision of the second circuit evolved the same kind of liberal interpretation of an apparently unlimited prohibition. (*Commonwealth v. Dr. Clayman*, District Court in Chelsea, Mass., August 1935). There is no reason to suppose that the other seven will not adhere to the normal course of following the lead of the federal government in this regard, especially since every dictate of public policy and sound reasoning is on the side of conformity.

So much for what the editorial says. A word should be devoted, however, to those things which the editorial does not say. It completely fails to point out the tremendous scope of the decision of the court in *United States v. One Package*. The decision is particularly significant in two respects 1. It lends support to a very wide definition of "legitimate purpose," for the doctors who testified in the course of the trial included, among the factors which they thought would warrant them in prescribing a contraceptive, economic as well as physiologic ills. This testimony is contained in the printed record and is an

indication of the breadth of the decision which was based on it. 2. The court assumed that the same interpretation which was here accorded to the importation statute would be accorded to the statutes dealing with the mails and with use of the facilities of interstate commerce. It is generally conceded that these three statutes ought to be construed identically, and it was so assumed by the writer of the editorial; but the decision in this respect is especially clear and comprehensive. Finally, to fail to allude to the customs ruling described above is to neglect to state an acknowledged and highly important result of the decision. Cases such as the very one commented on are from now on very unlikely even to arise, since the affidavit of a doctor or his agent suffices to insure the release of any articles which might be even temporarily detained. If the point of view of the writer of the editorial were adopted, physicians would be unable to take advantage of the freedom to which agencies entrusted with enforcement of the laws they fear to violate say they are fully entitled.

When the decision of the Second Circuit Court of Appeals is thus viewed in the setting of which it is an integral part, and the full extent of the holding called to mind, the claims made for it by the National Committee on Federal Legislation for Birth Control appear to be fully warranted. The warning to the medical profession that "contraceptive advice, devices and preparations [are] still contraband" is seen not to rest on either a sound or a thorough analysis of the present legal situation, and it can serve only the purpose of seriously impeding further progress in what is concededly an important branch of preventive medicine. In view of the seriousness of the errors made and the vital import of the problems discussed, correction should not be long in forthcoming.

FREDERICK A. BALLARD.	HARRISON TWEED.
MORRIS L. ERNST.	CHARLES E. SCRIBNER.
ALEXANDER C. DICK.	17 West Sixteenth Street, New York.

Legal Advisory Committee of the National
Committee on Federal Legislation for
Birth Control, Inc.

[This letter was referred to the Bureau of Legal Medicine and Legislation. Dr. W. C. Woodward, the director, replies:]

To the Editor:—The decision of the United States Circuit Court of Appeals for the Second Circuit, December 1936, in *United States v. One Package*, 86 F. (2d) 737, added nothing to decisions previously rendered by various courts further than the rule that contraceptive devices may lawfully be imported into the United States for the preservation of health. One of the three judges accepted the judgment of his associates with respect to the matter but expressed grave doubts as to its correctness. Under such circumstances, the weight that other courts will give this decision is purely speculative. Certainly it is not "a bill of rights for the medical profession," nor does it authorize physicians to give contraceptive advice "in public as well as private practice," as the National Committee on Federal Legislation for Birth Control, Inc., proclaimed. As the committee's propaganda seemed likely to bring physicians unwittingly into conflict with federal and state laws, THE JOURNAL undertook to inform them correctly concerning the situation. Nothing in the letter from the committee's legal advisers seems to sustain the broad claims made by the committee in the publicity material that it issued to the medical profession, or to do away with the necessity for a physician who desires to recommend contraception or to supply materials and devices for that purpose informing himself concerning the laws relating to contraception in the community in which he is practicing and governing himself accordingly.

W. C. WOODWARD, M.D., Chicago.
Director, Bureau of Legal Medicine
and Legislation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ALBUMINURIA IN BOY

To the Editor:—A few days ago I examined a youth, aged 18 years, for an insurance company. I could find no abnormality in the physical condition. The teeth and the tonsils were in good condition. The sinuses were clear. The chest was clear. The temperature was 98.6 F. There were no abnormal heart sounds. The blood pressure was 125 systolic, 89 diastolic. The medical history was absolutely negative. The only childhood diseases that he had were measles and whooping cough. The urine examination was as follows: specific gravity, 10.20; acid in reaction; no sugar. There was a definite white ring when examined for albumin with the nitric acid test. The insurance company also found albumin. His insurance company advised him to place himself under a physician's care for six months. At the end of that time he would be considered again for a policy. I have searched for the cause of the albuminuria and I am not able to find it. The boy has never been sick. He works hard on the farm and he would never have known that this albuminuria existed had it not been for his desire to take out insurance. I might say that the father took a policy on all the children, two boys and two girls. The 18 year old boy is the only one who showed any abnormal condition of the urine. I should like to know what kind of a program one should indicate for this boy to clear up the condition.

A. H. REISWIG, M.D., Fairmount, N. D.

ANSWER.—Obviously the first problem presented by this case is one of accurate diagnosis. The query states that the cause of the albuminuria has been searched for. But how was this done? There are two major situations that must be differentiated. Either the proteinuria is an evidence of otherwise silent renal injury (early nephritis, unless acute, is typically asymptomatic) or the albuminuria is wholly benign. There are many including the conservative life insurance medical directors, who deny the existence of any wholly benign proteinuria. On the other hand, much evidence has accumulated to indicate that so-called orthostatic albuminuria may exist for years without being the precursor of nephritis.

Orthostatic albuminuria (often also called lordotic, postural or adolescent albuminuria) is characterized by the appearance of considerable quantities of protein in the urine that is secreted while the patient is erect, with temporary cessation of the albuminuria in the urine secreted while the patient is reclining. Effort, such as walking vigorously or running, increases the albuminuria. It is found most commonly among underweight adolescents and youths up to the age of 25, and is more frequent in girls than in boys. The lordotic posture is usually but not invariably detectable. In the majority of cases the syndrome disappears spontaneously with maturity and with the gain in weight which comes at that time. There is no detectable impairment of renal function. It has been presumed that this postural albuminuria is due to torsion or pressure on the renal pedicle in the erect position with interference with the renal circulation. Similar postural effects are observed in patients with freely movable kidneys. In connection with the present case, nothing is mentioned in the query regarding the physique of the patient. The most significant evidence of orthostatic albuminuria can be obtained by comparing urine specimens voided immediately after arising in the morning (urine secreted while recumbent) with others voided after activity. In orthostatic albuminuria the early morning specimens will be completely free from albumin. It must be emphasized, however, that in Bright's disease there is a postural element which increases the proteinuria when the patient is active. Therefore careful microscopic inspection of the urinary sediment is necessary to rule out the presence of a few erythroplasts and/or casts as evidence of true nephritis.

More probable in this case is the conclusion that the albuminuria is evidence of a low grade nephritis. The query states that no abnormality in the patient's physical condition could be detected. This statement is not wholly accurate: A diastolic blood pressure of 89 is distinctly above normal for a boy of 18 years. The mean normal for this age is 76 and the maximum normal 84. The one reading is, of course, of relatively little significance, for the boy may readily have been excited. Repeated observations are absolutely necessary, and if the diastolic tension is found persistently in the neighborhood of 90 mm. or higher it may be taken as additional evidence of renal injury and impairment. Renal function studies are indicated before attempting therapy. The renal concentration test (*Queries and Minor Notes*, *THE JOURNAL*, Feb. 8, 1936, p. 484) and the

phenolsulfonphthalein test are simple office procedures and should be carried out. The renal concentration test should be considered as the most sensitive index to early impairment. It is a stress procedure and thus reveals otherwise hidden depreciation of the renal reserve.

If the boy has an orthostatic albuminuria, the most important therapeutic considerations are (1) a diet adequate in protein not only to replace the protein lost in the urine but also to yield sufficient for growth and development; (2) adequate calories to correct any underweight that may exist; (3) correction of anemia, should it be present. The treatment of an early, mild nephritis is along parallel lines with the additional consideration that search of sources of injury must be thorough and complete; foci of infection, unwise dietary habits (especially the abuse of condiments), chilling and any source of intoxication require review. It is observed that the urine of such patients is frequently alkaline, whereas the normal human urine is acid. An acid-ash diet (compatible with the liberal protein intake) is preferable to an alkaline one.

TRAUMA ACTIVATING SYPHILIS

To the Editor:—A member of the company received a blow over the sternum and complained of pain in the sternal region. A temperature of 99 to 100 F. was present. This pain and temperature continued for about two weeks, the temperature usually being normal or slightly above in the morning and rising in the afternoon. Physical, x-ray and other studies failed to reveal the cause of the complaints. Fracture and tuberculosis could be excluded; finally a blood test (Kahn) was reported positive. Another man received a blow in the middle of his forehead, which caused a small laceration. This was repaired and healed well. Headaches, however, have persisted since that time. Fracture and sinus infection can be excluded. As the cause of the headache was not found a blood test was made and found positive. I should like to know whether a "latent" syphilis could be activated by such seemingly insignificant trauma or by any trauma. Both men were well prior to the injuries and there was no history of syphilitic infection. If published please omit name.

M.D., Michigan.

ANSWER.—There can be no question of the importance of trauma as an unfavorable influence in syphilis from the beginning to the end of the infection. It is an axiom of the older clinical syphilology that one may always find latent or concealed syphilis becoming outspoken at a locus minoris resistentiae. The experimental evidence developed by Chesney and by Greenbaum and Madden tends to indicate that the reaction induced does not necessarily involve the actual presence of *Spirochaeta pallida* and that the local tissue response is not necessarily that of gummatous breakdown, as clinical experience alone would seem to suggest. Thus it is possible for a blow on the head to give rise to the onset of symptoms of dementia paralytica and *pari passu* of other seemingly remote symptomatic revivals of what had up to the time of injury been apparently a latent infection. Thus the fever in one patient and the headaches of the other are quite within the range of symptomatic lighting up of a latent syphilitic infection producible by seemingly minor trauma. Klauder and Solomon have gone extensively into the medicolegal status of the relation of trauma to dementia paralytica and no doubt the principles applicable there could be given wider significance were compensation commissions as well as industrial medical staffs more disposed to submit the problems involved to inquiry and adjudication. Gougerot and Clara have pointed out that every type of injury, mild or severe, sudden or prolonged, single or repeated, may serve to excite reaction on the part of a syphilitic infection.

It does not, however, follow that every trauma invariably gives rise to syphilitic reaction in a victim of the disease. It is therefore necessary in all cases to exclude rigorously by the most careful examinations all collateral possibilities. As head trauma is particularly known for its ability to revive or activate syphilis of the nervous system, a spinal fluid examination might well be considered in order if persistent headaches follow trauma in a case of latent syphilis. The same rule can properly be applied to the latency of a patient with fever, for in no case should the mere recognition of a positive blood serologic test for syphilis stop further investigation of the extent and character of the involvement for which the disease may be responsible. Only after an adequate investigation, which should certainly include a spinal fluid examination in cases like this, is it justifiable to institute a therapeutic test. It is discreet, to say the least, to begin such a therapeutic test with a heavy metal such as bismuth rather than with one of the arsphenamines, even though the spinal fluid is negative—for localized gummatous and vascular syphilitic lesions of the nervous system are not infrequently accompanied by negative spinal fluid examinations and yet may be flared up to disastrous or near-disastrous complications by the therapeutic shock administered by injudiciously used arsphenamine.

FATALITY FOLLOWING INJECTION OF
VARICOSE VEIN

To the Editor:—A married woman, aged 41, white, a quadripara, had smallpox at the age of 22, measles at 14 and influenza in 1918. The functional inquiry brought negative replies except for dizziness on sudden change of posture. Examination in 1924 was essentially negative except for the notation of a "slightly rapid pulse." The blood pressure was 130 systolic, 86 diastolic. Later parts of the record noted "heart o. k." several times. My own record begins in 1931 and was for pregnancy. There is nothing of any further significance except for the same complaint of dizziness on sudden change of posture and increasing difficulty with varicose veins. Early in 1934 I began a series of vein injections using quinine and urethane at the start and later changing to 5 per cent sodium morrhuate. The patient had a total of twelve injections, of which probably one half were of sodium morrhuate. In 1935 I again took care of her through a pregnancy with nothing more significant appearing than some edema of the ankles and trouble with the remaining varicosities. She was delivered normally in March 1935. The blood pressure during that pregnancy ranged from 138/80 to 145/90. A few days ago she came in and had several small varicose ulcers on one leg. It was evident that the internal saphenous vein was open from the ankle up. This vein had been well occluded, I thought, at the end of the treatments in 1934, but at any rate it was open the other day. I prepared to give her an injection of sodium morrhuate. I used a fresh 5 cc. (5 per cent solution) rubber capped vial (Breon Company, Kansas City, Mo.). The vein was easily entered. A small amount injected caused the complaint of severe burning in the vein, so I stopped and pulled back the plunger. It was still in the vein, so I injected a little more. The pain was again severe, so I stopped. With the blood in the syringe it was hard to say the exact amount injected, but it was something less than half of the 5 cc. She reacted rather queerly, seeming somewhat faint and complaining of very severe pain all the way up the vein and even into her back. I had her lie down and kept her at the office for two hours. It was soon noticeable that the entire foot was very blue and cold, the discoloration extending toward the knee and, of course, getting less farther up. The pulse was rather weak and rapid at times, so I gave her 0.5 cc. of 1:1,000 epinephrine. After two hours she seemed much better and ready to go home. I helped her out to my car, intending to take her home, but just as we got to the car she went "out." I managed to get her leveled out between the seats and gave her the other 0.5 cc. of epinephrine. She was out so deeply that the bladder was emptied. Not wanting to risk further attacks, I got the ambulance and as soon as she had brightened up a bit I moved her on the cot and took her to my home and put her to bed. She was improving rapidly by this time and had not been long in bed until she seemed quite all right. The pulse, the blood pressure and the color were all good and incidentally the foot was now warm and of natural color. About four hours later her relatives became rather urgent about taking her home as she felt all right. I was reluctant to let her go but could not see any reason for insisting that she stay, so after trying her in a chair a while I helped her walk a few feet to the car. We were no more than in the car when she went out again. I hurried her back to bed (she returned to consciousness rather quickly but remained in shock) and I used 0.5 cc. of epinephrine and digalen (1 ampule intravenously) and morphine and heat to try to bring her out of her shock, but she just kept going deeper and died about two hours later. The digalen was just a forlorn hope. I realized that it was not particularly indicated but I was desperate and nothing else seemed to be helping. I also gave some 50 per cent dextrose intravenously. The only symptoms I can describe during that period are very rapid, weak pulse, often barely perceptible at the wrist, pallor, and toward the last cyanosis, sweating and retching. I wrote "shock probably anaphylactic" on the death certificate. It was certainly shock but could it have been anaphylactic? Is there such a thing as sensitization to sodium morrhuate? Or is it possible that this solution has become toxic in some way? I have two more of the ampules and I should like to know where I might send them for analysis. I do not know whether this story will give you enough to go on to allow you to voice an opinion, but I hope so, and I also hope that some benefit to others may come from the case. It broke me up badly to have it happen but I acted as it seemed best at the time. M.D., Nebraska.

ANSWER.—In view of the fact that the general history of the patient up to the doctor's record in 1930 was negative, there was no contraindication in the treatment of the varicosities. The dizziness mentioned was probably due to delayed orthostatic blood pressure response, caused in the act of stooping, possibly an irritable carotid sinus. Quinine and urethane have the most frequent systemic reactions of any of the sclerosing solutions. Patients have gone into shock after the injection of 2 cc. of quinine and urethane, and the blood pressure has dropped. The lowest noted was systolic 58/0? However, there was a return to normal in the course of an hour or so.

The recent repeated treatment with sodium morrhuate certainly was not contraindicated. Undoubtedly the small amount injected may have induced the initial shock, but the extreme repeated collapse mentioned is not an ordinary experience. Sodium morrhuate may have produced an allergic reaction as any drug will do in certain individuals.

We cannot draw any definite conclusions from these reported cases as to the advisability of discontinuing sodium morrhuate or any other sclerosing reagent, as there is evidence that any type of drug may produce anaphylactic reactions, and these reactions are extremely rare compared with the large number of injection treatments given.

There is a remote possibility that this patient had a congenital septal cardiac defect and that following the vein injection a thrombus formed and became dislodged, immediately passing from the right to the left side of the heart and occluding a coronary artery, resulting in a painless occlusion.

There is also a possibility of pulmonary embolism with atypical symptoms, particularly in the second attack. Also there is a possibility of some chemical change in the solution injected. If solution from the same bottle is still available, one might try its effect on an animal.

SYPHILIS WITH SENSITIVITY TO METALS

To the Editor:—A woman, aged 27, had latent untreated syphilis. She gave a history of mucous patches on the genitalia six years ago and two miscarriages shortly thereafter. I began antisyphilitic treatment with weekly injections of nearsphenamine, the first dose 0.3 Gm., the second dose 0.45 Gm., and the remaining doses 0.6 Gm. Following each injection the patient vomited her meals for a period of about twenty-four hours. After the fourth injection of nearsphenamine, a typical picture of agranulocytosis developed: high fever, areas of necrosis in the gums involving also the jaw bones, and a blood picture of 1,200 white blood cells and 4 per cent polymorphonuclears. Response to pentnucleotide and liver extract was prompt and the patient recovered in a week. She was then put on saturated solution of potassium iodide 45 minims (2.8 cc.) daily and weekly intramuscular injections of bismuth salicylate in oil 2 grains (0.13 Gm.). Within a month she lost appetite, she had a brassy taste in her mouth, and a blue line appeared on the gums. The patient is apparently hypersensitive to arsphenamine and has poor tolerance for bismuth. Could you suggest a course of treatment that would be safe and at the same time effective against the syphilis? Please omit name.

M.D., Michigan.

ANSWER.—The intolerance to the metals which this young woman has displayed is sufficient reason to discontinue all antisyphilitic treatment for the time being. It is the usual experience that a patient who develops an agranulocytosis as a complication of treatment with nearsphenamine is also intolerant to the other metals used in the treatment of syphilis. The tendency to react to these drugs may disappear within six months or a year, at the end of which time small doses of bismuth or mercury, one eighth or one sixth of the average dose, may be tried with caution, but one drug being administered during the course. The leukocyte count in such a patient is often an indicator of impending reactions, and the appearance of a leukopenia should be the warning sign to stop treatment again. If reactions are produced by these drugs in small doses, the avoidance of treatment is warranted.

The question of this patient's infectiousness and the likelihood of the syphilis progressing are for the time being of secondary importance. As she has had the infection for six years, there is small possibility of her transmitting the disease, and because she is in the latent phase of syphilis, the likelihood of her developing clinical evidence of syphilis within a year is remote. The patient should, however, be cautioned forcibly against becoming pregnant.

NEUROCIRCULATORY ASTHENIA AND CARDIAC NEUROSIS

To the Editor:—An executive, aged 61, who has always enjoyed excellent health despite the fact that he always worked at high pressure, recently received a severe shock in the accidental death of his favorite son in an automobile accident. Since then he has had pain in the precordial region and at times, even in the dead of night, is apprehensive. I am unable to find any evidence of heart involvement and careful examination shows no evidence of focal infection except for two dead teeth. A rough Schneider test reveals:

	Pulse	Blood Pressure	
		Systolic	Diastolic
Prone	70	120	72
Sitting	72	120	72
Standing	74	120	74
Immediately after exercise.....	126	170	76
Three minutes after exercise.....	74	124	70

When he arrives at our office his systolic pressure varies from 114 to 150 and I am in a quandary as to what type of treatment to institute. A trip to the sea shore only resulted in an increase in symptoms and he returned home to "take care of the tag ends" of his business. Any suggestions you may give me to stabilize his vascular system will be deeply appreciated. Please omit name.

M.D., Wisconsin.

ANSWER.—The diagnosis in this case seems to be that of neurocirculatory asthenia and cardiac neurosis dependent primarily on fatigue and the nervous strain from the severe shock caused by the accidental death of the favorite son. There is no evidence of heart disease, although at the age of 61 one must be very careful to rule out such evidence, the discovery of which would be of some importance in the production of symptoms and to help in regulating the patient's life in the future. For the sake of completeness, an electrocardiogram should be taken.

In the absence of evidence of heart disease the prognosis as to longevity is probably good, although one would like to know the longevity of the parents and grandparents.

Certainly in the way of treatment sympathetic reassurance in repeated doses, a long holiday, and a reform of his way of living are the measures to be recommended. The holiday should be in some place where much pleasure and leisurely distraction are possible.

TOXIC OR RHEUMATIC HEADACHE

To the Editor:—About ten months ago while employed at a soda fountain, the patient noticed a sensation in his head, close to the surface, as though something were crawling about. This sensation was confined to a definite area about 3 cm. in diameter and about 3 cm. to the right of the midline and a line corresponding to the external auditory meatus. This sensation continued for about a month, when it changed to a dull aching feeling. About two weeks after the original onset and before it had changed to a dull ache, he would notice a feeling of tingling and numbness in his right upper extremity. This feeling in his right arm would come on only while he was reclining, as before going to sleep or on awakening from sleep, and would not be experienced while he was up and around working. These sensations in his arm lasted for only about two weeks and have never recurred. The dull aching feeling in his head however has persisted, although it has been relieved from time to time by sedatives. His past history included measles and chickenpox in his childhood, appendectomy in 1928 and pneumonia in 1930. As he remembers it, the attack of pneumonia did not include meningeal or encephalitic symptoms. His family history is negative. Both of his parents and his one brother are living and well. The patient is a white man, aged 28, weighs 160 pounds (73 Kg.), is about 5 feet 11 inches (180 cm.) in height and has a blood pressure of 112 systolic, 68 diastolic, a pulse rate of 84 and normal temperature. There are no palpable masses in the cranium and no tenderness on percussion over the area involved. The eyes reacted equally to light and in accommodation. The eyegrounds appeared normal, though very satisfactory views were not obtained as the eyes were not dilated. The ear drum on the right side was dull, with only a suggestion of the light reflex remaining. The tonsils appeared necrotic, as though chronically inflamed. He had one carious tooth, but this was extracted a week or so before. There were no palpable cervical glands nor was there any palpable enlargement of the thyroid gland. The heart, lungs and abdomen, as well as the extremities, were normal. The Romberg sign was negative and the deep reflexes all appeared normal. There was no disturbance of the motor, stereogenic or kinesthetic senses. Red blood cells numbered 4,250,000, hemoglobin was 90 per cent, and the Wassermann reaction has been repeatedly negative. I should like your suggestions as to diagnosis and treatment. YOUNG SAM JENKINS, M.D., Taft, Texas.

ANSWER.—From the dearth of evidence listed it would seem unlikely that the patient has an organic disease of the central nervous system. There may be a definite relationship between the dull aching pain over the right side of the head (parietal scalp) and the infected tonsils. This condition is known as an infectious or rheumatic headache. In some of these cases one is able to palpate small tender nodules over the involved area or in the tissues along the back part of the neck. The treatment is removal of all foci of infection and the giving of some form of acetylsalicylic acid, usually from 1 to 1.3 Gm. a day for a period of five or six weeks. Copious amounts of liquids should be taken daily. Occasionally multiple sclerosis starts off with numbness and tingling in one or two extremities but in this condition the paresthesias are constant until improvement occurs.

SKIN TEST FOR PREGNANCY

To the Editor:—Please furnish me with information on the reliability of the skin test for the diagnosis of pregnancy, as described by Gilfillen and Gregg, using intradermal injection of antuitrin-S. What is the approximate percentage of error in this test and in the Friedman modification of the Aschheim-Zondek test? Please omit name.

M.D., Virginia.

ANSWER.—The work of Gilfillen and Gregg has not been verified by other observers. In a series of more than 100 cases, the reports of which are now being prepared for publication, the value of the test as a reliable indication of the presence or absence of pregnancy is doubtful. A communication from the men doing this work indicates an approximate error in known pregnancies of 10 per cent, in nonpregnant women of 40 per cent (positive tests having been obtained on the urine of menstruating women), and a group of tests on male urine showed a 50 per cent error. From such figures it is difficult to feel that such a test can be used with any amount of satisfaction.

The Friedman modification of the Aschheim-Zondek test is a reliable procedure, showing correct results in about 98 per cent of checked cases. At present it is felt that for the most reliable and satisfactory tests for pregnancy we must rely on the Aschheim-Zondek (99 per cent correct) or Friedman tests in spite of their more complicated technical workings.

WORRY OVER SIZE OF SEX ORGANS

To the Editor:—A white man, aged 37, a cab driver, strong and healthy, is developing a neurosis through intensive brooding over the fact that his penis and testes are somewhat smaller in size than the average. He fears this denotes "lack of manhood." He appears normal on general physical examination and all routine laboratory procedures. Detailed genitourinary examination reveals no abnormalities except that the penis, scrotum and testes are all somewhat undersized. There is no history of venereal infection, parotitis or any disease or trauma specifically affecting the genitals. He is sexually normal in every way, the semen containing an abundance of live active spermatozoa. Do you think intensive treatment with gonadotropic extract of pregnancy urine would stimulate the genital growth in this case to any appreciable extent?

M.D., District of Columbia.

ANSWER.—It is an exceedingly common experience for a sexologist to be consulted by men who are sexually normal but who worry because their sexual organs are smaller than those of other people. They are especially ashamed when using a public bath and fear that others will notice their small genitals. The patient will be comforted by being told that the penis has two functions, that of urination and that of sexual connection. If it can perform both these functions, it is to be considered normal. In other words, the patient must not worry how small the organ is in the ordinary condition as long as during connection it gets large enough to penetrate the female genitals to his and his partner's satisfaction.

As to the use of gonadotropic substance, it is doubtful whether it would have any effect on the size of the genitals in a man of 37.

TREATMENT OF PHLEBITIS

To the Editor:—One year ago last December a patient came to my office complaining of pain in the right leg following a hunting trip of a week's duration. Examination revealed an early phlebitis of the right leg. The patient was confined to bed with elevation of his extremities and application of dry heat to the extremity. That night the patient had an embolus to the left lung causing frothy blood-tinged expectoration, pain in his left chest, dyspnea, cough and increased pulse rate. Following this a left pleural effusion caused so much discomfort and dyspnea that aspiration was necessitated, resulting in withdrawal of at least 1,000 cc. of serosanguineous fluid at each aspiration. The phlebitis of the leg advanced proximally through the saphenous vein and thence to the iliacs, crossing over to the left thigh and leg and involving both superficial and deep veins. Later the condition advanced to the deep pelvic veins and anterior abdominal veins. This resulted in marked tenderness in the patient's abdomen and back. Absolute rest was maintained for at least four months before the condition abated at all. Later the patient was fitted with elastic stockings and was gradually removed from bed. After a while he was able to get around in a wheel chair. Later he could go about on crutches. He did not have fever, his general nutrition was good and he had no symptoms of further involvement. He then decided to take a short trip to a nearby town, where he had another attack of phlebitis of the anterior abdominal wall. He was immediately confined to bed in a hospital by another physician and kept there for more than a month until this attack abated. He was allowed to return home and had been here for about two weeks when he had another acute attack of phlebitis in the left thigh and leg. He is now in bed again under an electric heat cradle with slight elevation of the legs. He has been receiving additional supportive treatment to maintain his nutrition and prevent anemia. He is quite discouraged, as any one would be after such a long siege of sickness and treatment. He wonders whether he will ever be well again. I am asking for any other therapy that might be given to avoid any further attacks or flare ups of this condition. I have never resorted to any intravenous medication of any sort as all my teachings and readings from authoritative sources have discouraged me in this.

M.D., Wyoming.

ANSWER.—This patient must undergo a thorough examination for possible sources of infection. The tonsils should be inspected and, if necessary, massaged to reveal infection. If they have been removed, remaining stubs should be searched for, as they are often apt to produce absorption. Complete dental x-ray films should be inspected for root abscesses, dead teeth and incomplete fillings. In a case like this, even doubtful teeth should be sacrificed. The prostate must be massaged and a prostatic culture obtained. The thrombophlebitis can also originate in abdominal infections, such as appendicitis or cholecystitis may harbor. He could also have had an ambulatory type of typhoid or paratyphoid infection, which is sometimes followed by phlebitis. Even after all suspicious foci of infection have been removed, attacks may recur following unusual physical strain or injury. The heart must be carefully examined for the possibility of a latent endocarditis, which may follow repeated attacks of deep thrombophlebitis. The course and subsidence of the process may be followed by sedimentation rates. Therapy should consist of thorough eradication of foci and immobilization until the pulse, leukocyte count and temperature have been normal for at least ten days. Small doses (120 roentgens with heavy filter) of x-rays over the areas of phlebitis often hasten the termination of acute attacks.

DIAGNOSIS OF SYPHILIS FROM SEROLOGIC
OBSERVATIONS

To the Editor:—A white youth, aged 20, seen Aug. 11, 1936, because of gonococcal infection of the urethra, had a routine blood examination which showed a 3 plus Kahn reaction. He was hospitalized in another city and was under treatment by another doctor in July 1936 because of extensive trichophytosis of the feet. Physical examination there showed a slight watery urethral discharge, negative for gonococci, present only in the morning, and a few small swollen glands in each groin. Blood tests taken there were Kahn 1 plus and Kahn negative. Physical examination August 11 showed a gonococcal infection of the urethra, a few small palpable glands in each groin, and a mild trichophyton infection of the toes of both feet. The physical examination was otherwise normal. A physical examination August 17 gave the same results. There were no penile sores or scars. Nothing on the skin or mucous membranes was suggestive of primary or secondary lesions. The eyegrounds appeared normal. The heart and central nervous system were normal. Two subsequent examinations have been normal. The patient admits frequent sexual exposures but denies ever having had any sores on the penis, lips or body. He does not recall having had any body rash except measles at 8 years of age. Both his father and his mother died about nine years ago, and he is not very clear about their history. What history is obtainable, however, could fit with that of syphilis. The father died at 44 of "heart failure." He was sick for two and one-half years. He had a stroke at 41 affecting the left side of the body. His mother died at 44, having been a mental case for about one and one-half years. One brother is living and well. No brothers or sisters have died in infancy. So far as the patient knows, the mother had no miscarriages or stillbirths. The patient received sixteen weekly intramuscular injections of a bismuth compound from Sept. 28, 1936, to Jan. 1, 1937. No other treatment of an antisyphilitic nature has been given. The blood became negative after the third injection of bismuth and has remained so except for one doubtful reading. Incidentally, the trichophytosis cleared up at about the same time the blood became negative. Blood examinations were made as follows:

Laboratory 1.....	7-28-36	Kahn 1 plus
Laboratory 1.....	8- 6-36	Kahn negative
Laboratory 2.....	8-17-36	Kahn 3 plus
Laboratory 2.....	8-24-36	Kahn 3 plus
Laboratory 2.....	8-31-36	Kahn 1 plus
Laboratory 2.....	9- 8-36	Kahn 3 plus
Laboratory 2.....	9-14-36	Kahn 3 plus
Laboratory 3.....	9-14-36	Kahn 3 plus Wassermann neg.
Laboratory 4.....	9-14-36	Kahn 3 plus Wassermann neg.
Laboratory 2.....	9-28-36	Kahn 2 plus
Laboratory 2.....	10-26-36	Kahn negative
Laboratory 2.....	11- 2-36	Kahn negative
Laboratory 2.....	11-30-36	Kahn doubtful
Laboratory 2.....	12- 7-36	Kahn negative
Laboratory 2.....	1- 4-37	Kahn negative

Spinal fluid examination: Laboratory 3, 9-14-36, cells 17, Kahn negative, Wassermann negative, globulin slightly positive, colloidal gold 0000000000. Is a diagnosis of syphilis justified from the results of the blood tests and reversal to negative with three injections of the bismuth compound? If so, what plan of treatment would you recommend?

M.D., Connecticut.

ANSWER.—The serologic reactions do not form sufficient ground on which to warrant an unqualified diagnosis of syphilis. The absence of a history and clinical manifestations of syphilis adds weight to the suggestion that the serologic reports are nonspecific or false positives. The majority of serologists do not believe that nonspecific positive tests occur; they prefer to believe that the serologic test has such a high degree of specificity that nonspecific or false positives do not occur. Clinicians, however, repeatedly see positive serologic reports of nonspecific nature.

For the case in question it is suggested that a specimen of blood be drawn, divided equally into two parts and each half sent to a different laboratory. If both laboratories report positive tests, treatment with neoarsphenamine and a bismuth compound should be continued. If the tests are reported negative, the patient should be placed on observation and the tests repeated in six months. The need for treatment in the future will be dependent on the subsequent serologic reactions.

USE OF CALCIUM AND COD LIVER OIL IN PREG-
NANCY TO PREVENT DENTAL CARIES

To the Editor:—Is there conclusive evidence that the use of calcium and cod liver oil during pregnancy prevents dental caries in the mother? In a woman prone to dental caries but otherwise completely healthy from every standpoint and examination, does the prolonged use of calcium and vitamin D products prevent or retard caries? Please omit name.

M.D., New York.

ANSWER.—It is difficult to produce "conclusive" evidence that the use of calcium and cod liver oil during pregnancy prevents dental caries in the mother. In spite of this, several authors have expressed definite opinions on this subject. Vignes (*Progrès méd.* 43:477 [March 24] 1928) from a study of the literature and his own experience maintains that an insufficiency of calcium leads to dental caries. Richardson (*Illinois M. J.* 59:453 [June] 1931, 65:367 [April] 1934) states that dental caries and brittleness of the teeth during pregnancy may be

improved in ten days by the use of viosterol and absolutely and completely arrested in two weeks when adequate dosage is employed. Dentists requested to check up on these observations reported an increased hardness in the carious surfaces after viosterol. This hardness, according to Richardson, represented a recalcification of the decalcified dentin.

There is abundant evidence from the work of Maxwell and Miles in China and of Green-Armytage in India and others that osteomalacia is a deficiency disease and that the main deficiency is a lack of vitamin D. This disease may be stopped and cured during pregnancy provided a proper supply of vitamin D and calcium is given.

Danforth (*Illinois M. J.* 69:219 [March] 1936) states that vitamin D influences growth both in laboratory animals and in man. Lack of this vitamin results in deficient calcification, causing the production of soft, fragile, bony structure. Vitamin D exerts a definite effect on calcium and phosphorus absorption and for this reason an adequate supply should be provided for the pregnant woman. In warm weather, simple exposure to the sun provides an efficient and inexpensive method of supplying the needed vitamin D, provided sufficient precursor is present in her own tissues, but in winter, particularly in the colder parts of the country, the administration of viosterol is of great value, especially if combined with calcium and phosphorus.

In view of the foregoing opinions and especially because the possibility of overdosage of these substances is remote, this patient who is prone to dental caries should be given an abundance of calcium and vitamin D.

HYDROCELE

To the Editor:—An 8 year old boy was operated on for hydrocele, which after about six months has returned. Could satisfactory results be expected from injection therapy? As the patient has a slight allergic history, what preparation could best be used? Should a skin test be done before injection?

M.D., Connecticut.

ANSWER.—It is unusual to have a hydrocele recur after a radical operation. The question arises whether the patient informed the doctor correctly; it is possible that the hydrocele was tapped and not operated on. If the patient has a recurrence he should be operated on and not have injection therapy.

THE APPENDIX AND COLONIC PERISTALSIS

To the Editor:—In THE JOURNAL, April 3, in Queries and Minor Notes, page 1201, I observe that to the question whether "the appendix is the initiator of peristalsis of the colon," propounded by Dr. J. Marsh Frere, your reply is "There is at present no evidence that the appendix in any way governs the movements of the colon."

I beg leave to submit the following quotations from my book on Appendicitis (New York, D. Appleton & Co., 1927, p. 28) as justification for the query and possibly throwing some light on the subject:

"A unique and striking position is taken by Adami and McCrae (*Text-book of Pathology*, 1914) . . . They are impressed with the mechanical relationships of the appendix and the large bowel in man as an erect animal. 'It is the appendix,' they hold, 'that is the hydrostatic agent initiating peristalsis in the large gut.' These writers maintain that, when the weight of the column of feces forming in the colon reaches a certain point, its distending force, acting on the appendix walls below, originates muscular contractions, which spread directly into the cecum and so start the forward movements of its contents. Adami and McCrae further thought that 'such a view explains constipation in the bedridden, in whom this gravitational influence of the contents of the ascending colon can have little effect; it explains the normal tendency to empty the bowels, either shortly after rising, and assuming the erect position, or after the first meal when stimulating peristalsis of the small bowel has driven extra contents into the cecum and so increases the load; it explains the constipation that follows some interval removals of the appendix.' 'Appendical constipation' was a special point in their proof 'through lack of initiation of colonic peristalsis, either from inflammation or other obliteration of the lumen of the appendix or operative removal of the same.' At the time my comment was 'One sympathizes with their effort to prove the hydrostatic function of the appendix and accepts the phenomenon offered but must feel some doubt concerning the sole agency of the appendix in producing the results.'"

I also called attention to a practically identical theory elaborated by Dufour (*Presse méd.*, May 12, 1890). "He felt that the appendix plays a great part in provoking a desire for defecation independent of reflexes concerned in the act. According to his view inflammation of the appendix disturbs its function by immobilizing the bowel instead of aiding its movements; while even without infection an appendix which is too movable excites the peritoneum and gives rise to hyperperistalsis with colicky pains. In the former condition constipation would be the rule and in the latter, alternating diarrhea."

While these hypotheses may seem unimportant and to some impossible of acceptance, my clinical experience during the past few years appears to confirm definitely the observations of Adami and McCrae, whose remarks I have reason to believe, were reprinted for the first time in my book. At any rate I cannot resist the impulse to suggest that discussion of the question may have some practical value. A paper by me, bearing on the subject, will appear shortly in the *Southern Medical Journal*.

HUBERT A. ROYSTER, M.D., Raleigh, N. C.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 15, page 1739.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* June 21-23 and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given at Philadelphia in June. *Written examination* will be held in different centers of the United States and Canada in October. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7, and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6, Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part I (written)*, Sept. 20. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Arizona January Examination

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held in Phoenix, Jan. 6-7, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Twenty-one physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine.....	(1935)		79.9
Chicago Medical School.....	(1935)		77.8
Northwestern University Medical School.....	(1934)		87.5
Tulane University of Louisiana School of Medicine.....	(1936)		78.9
University of Oklahoma School of Medicine.....	(1935)		77.8
Baylor University College of Medicine.....	(1934)		84.5
School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine.....	(1907)		Nebraska
University of Illinois College of Medicine.....	(1929), (1933)		Illinois
State University of Iowa College of Medicine.....	(1904), (1909)		Iowa
Southwestern Homeopathic Medical College and Hospital, Louisville.....	(1906)		Kentucky
Tulane University of Louisiana School of Medicine.....	(1932)		Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1928)		Alabama
Wayne University College of Medicine.....	(1934)		Michigan
St. Louis University School of Medicine.....	(1932)		California
University Medical College of Kansas City, Missouri.....	(1911)		Missouri
Washington Univ. School of Medicine (1929) Illinois.....	(1933)		Missouri
Columbia Univ. College of Physicians and Surgeons.....	(1911)		New York
New York University, University and Bellevue Hospital Medical College.....	(1928)		New York
Starling Medical College, Ohio.....	(1903)		Ohio
University of Pennsylvania School of Medicine.....	(1916)		Penna.
University of Tennessee College of Medicine.....	(1933)		Tennessee
Vanderbilt University School of Medicine.....	(1917)		Tennessee
Baylor University College of Medicine.....	(1915), (1932)		Texas

Pennsylvania January Examination

Dr. James A. Newpher, secretary, State Board of Medical Education and Licensure, reports the examination held in Philadelphia, Jan. 5-9, 1937. Thirty-five candidates were examined, 34 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
George Washington University School of Medicine.....	(1933)		1
Georgetown University School of Medicine.....	(1935)		1
Howard University College of Medicine.....	(1935, 2)		2

Loyola University School.....	(1937)	1
Johns Hopkins University.....		2
University of Maryland School of Physicians and Surgeons.....	(1917)	1
Harvard University Medical School.....	(1934)	1
Tufts College Medical School.....	(1931)	1
New York University College of.....		1
University of Buffalo School of.....		2
University of Oklahoma School.....		1
Hahnemann Med. College and Ho.....		1
Jefferson Medical College of P.....		1
(1935, 2).....		7
Temple University School of.....	(1934)	1
Univ. of Pennsylvania School.....	(1935)	3
University of.....	(1935)	1
University of.....	(1935)	1
McGill Univ.....	(1935)	1
Deutsche Univ.....	(1932)*	1
University of Dublin School of Physic, Trinity College.....	(1935)	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....	(1935, 2)†	2
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow.....	(1935)	1

School	FAILED	Year Grad.	Number Failed
Temple University School of Medicine.....	(1934)		1

Four physicians were licensed by reciprocity and 2 physicians were licensed by endorsement on January 5 and January 22. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Minnesota Medical School.....	(1933)		Minnesota
University of Buffalo School of Medicine.....	(1933)		New York
Hahnemann Medical College and Hosp. of Philadelphia.....	(1934)		New Jersey
University of Wisconsin Medical School.....	(1929)		Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine.....	(1934) N. B. M. Ex.		
University of Pennsylvania School of Medicine.....	(1932) N. B. M. Ex.		

* License has not been issued.
† Verification of graduations in process. The license of one of these applicants has not been issued.

Missouri Reciprocity and Endorsement Report

Dr. Harry F. Parker, State Health Commissioner, reports 5 physicians licensed by reciprocity and one physician licensed by endorsement at the meeting held in Jefferson City, March 9, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine.....	(1936, 2)		Indiana
University of Minnesota Medical School.....	(1925)		Minnesota
Creighton University School of Medicine.....	(1931)		Kansas
University of Tennessee College of Medicine.....	(1935)		Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Boston University School of Medicine.....	(1935) N. B. M. Ex.		

Oregon January Examination

Dr. Joseph F. Wood, secretary, Oregon State Board of Medical Examiners, reports the written examination held in Portland, Jan. 5-7, 1937. The examination covered 11 subjects and included 81 questions. An average of 75 per cent was required to pass. Eighteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists.....	(1936)		88, 88
Northwestern University Medical School.....	(1936)		88
School of Med. of the Division of the Biological Sciences.....	(1934)		92
Tufts College Medical School.....	(1935)		86
Creighton University School of Medicine.....	(1935)		82
University of Oregon Medical School.....	(1931)		88,
(1935) 85, 86, (1936) 89, 89, 90, 91, 92, 95			
Jefferson Medical College of Philadelphia.....	(1935)		88
University of Wisconsin Medical School.....	(1935) 88, (1936)		84

Eight physicians were licensed by reciprocity and one physician was licensed by endorsement from January 6 through February 15. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California Medical School.....	(1934)		California
University of Kansas School of Medicine.....	(1929)		Kansas
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1937)		Minnesota
St. Louis University.....			Missouri
University of Nebraska.....			Nebraska,
(1934) Arizona			
University of Oregon Medical School.....	(1931)		New York,
(1935) Washington			
School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Oregon Medical School.....	(1935) N. B. M. Ex.		

Book Notices

Lectures on Embolism and Other Surgical Subjects. By Gunnar Nystrom, M.D., Professor of Surgery, University of Uppsala, Sweden. The Abraham Flexner Lectures, Series Number Four. Published for Vanderbilt University. Cloth. Price, \$3. Pp. 213, with 22 illustrations. Baltimore: Williams & Wilkins Company, 1936.

The Abraham Flexner lectureship was established in 1927 at Vanderbilt University School of Medicine. An adequate endowment was provided, the income from which was to be used to secure as lecturer, at intervals of two years, some eminent physician or scientist, who remains biennially in residence for a period of two months and becomes associated with the leading personnel and students. The fourth lecturer in this series, Prof. Gunnar Nystrom, gave a number of informal lectures in the wards, operating rooms and clinics. Only five of these have been included in the present volume.

The subject of the first lecture is embolism of the arteries of the extremities and its treatment. He not only relates his extensive personal experience (thirty-five cases) but has collected and analyzed the entire Swedish material, which because of its size and of its accurate follow up has served as a model for the rest of the world. Especially valuable are the figures of Strombeck, who followed sixty-one patients after their discharge from the hospital with restored circulation. He found that three fourths of these patients were alive after one year, half of them after three years, one third after five years and one eighth ten years after embolectomy. The great modesty of the author in describing his own contributions to the technic of the operation is apparent throughout the volume.

In the second lecture, pulmonary embolism and its surgical treatment are discussed. Here again the author is known as a pioneer in the field. A number of interesting charts are presented, some of them never published before, on the increasing frequency of embolism in the Uppsala clinics, on its relation to the increase in the age of surgical patients, on the number of deaths from private and public wards, and on the difficulties of preoperative diagnosis. Many important technical points are discussed. Real progress in this field can be expected when the causes of thrombosis and the methods of its prevention have become better understood.

The third lecture deals with Swedish experiences in combating appendicitis. He touches here on all the controversial points that are now agitating the surgeons of this country. In the Uppsala clinic the mortality from suppurative peritonitis has decreased from 20 per cent for the cases between 1888 and 1907 to 3.9 per cent from 1912 to 1918. In an enlightening table he shows that in 1934 operations were performed in 71 per cent of all cases within one day of the attack, in 85 per cent within five days and in 7 per cent more than three days after the attack. X-ray examination, with and without contrast enemas, has been used extensively in his clinic. In fact Hugo Laurell, roentgenologist at Uppsala, has made important contributions in this field. With regard to the Ochsner treatment of peritonitis, Nystrom, together with the other Scandinavian surgeons, believes that all cases of diffuse peritonitis due to appendicitis require immediate operation unless the patient is in a dying condition. His arguments, especially when he presents the data of Bauer of Malmo, are truly impressive. The author has also noted an increase in the mortality of appendicitis in the last few years but points out that some of this is only apparent. He suggests a widespread education of the general public, an increased vigilance on the part of physicians, further improvements in diagnosis, earlier admissions to the hospital, and possibly the development of serologic methods to decrease mortality.

There is an obvious inference to be drawn from the first three lectures: the excellent undergraduate and postgraduate education of the Swedish physicians, their alertness in the diagnosis of emergencies, and their unwillingness to handle surgical emergencies that are beyond their skill and experience.

In the fourth chapter the author discusses the cytology of joint exudates as an aid to diagnosis. More than 400 exudates, mostly from the knee joint, have been examined. Purposely only a simple method has been employed, which might be used in hospital laboratories or in the office. A differential

count was made between polymorphonuclear cells and mononuclear cells of all kinds. Either a dry smear is stained with borax-methylene blue or citrated sediments are stained by Quensel's method (methylene blue, sudan red and cadmium chloride). This Swedish colleague of Nystrom has studied a number of pleural and peritoneal exudates with this method. Absence or a very low count of polymorphonuclear cells in a joint exudate is characteristic of a slight chronic irritation of mechanical nature. A high count of polymorphonuclear cells is characteristic of toxic irritation, produced by aseptic necrosis, foreign chemical substances or toxins produced by microorganisms. A moderate degree of polynucleosis (from 40 to 70 per cent) is characteristic of the vast majority of cases of tuberculous synovitis, but neither a marked mononucleosis nor a high polynuclear cell count excludes tuberculosis of the joint. In various other types of arthritis the percentage of polymorphonuclear cells decreases with the subsidence of the process.

Nystrom regards these studies merely as an attempt for a tentative orientation. Certainly this field, to which many American authors, such as Sabin, Cunningham and Keyes, have made important contributions, has not been generally known or utilized by the profession. It should stimulate further work.

In the last chapter the treatment of intracapsular fractures of the neck of the femur is discussed. Here again Nystrom brings up a much discussed subject. After a short, lucid historical review in which the rôle of American surgeons is adequately discussed, the author describes his present method of choice, which is the Johansson modification of the Smith-Petersen flanged nail, used for internal fixation. In a period of one and a half years, twenty-nine cases of medial fractures of the neck of the femur were treated by this method. There are important technical details meticulously described. The death rate was 6.9 per cent; with increasing experience and prolonging the time of rest in bed to from two to three months his results have been growing better. Excellent diagrams illustrate the close follow up of these cases. He believes that this method gives better results than any one previously used.

These five lectures are of general interest. While they discuss surgical subjects, the relationship of early proper diagnosis by the physicians to the superb performances of the Swedish school of surgery is obvious. Vanderbilt University must be congratulated for having secured first hand information by one of the leaders in Scandinavian surgery. The text has retained the original forceful, sometimes foreign but grammatically correct delivery of the lecturer. Illustrations and printing are excellent. This group of lectures is recommended to all interested in surgery or to those who would wish to know how modern surgical methods can decrease the mortality of their handicapped patients.

Lomboartrite e sciatica vertebrale: Saggio clinico. DI V. PUTTI. Paper. Price, 50 lire. Pp. 218, with 144 illustrations. Bologna: L. Cappelli, 1936.

This monograph on lumbar arthritis and vertebral sciatica is a welcome publication. The author's name assures the value of the book. It contains a compilation of the author's previous presentation on this subject, and much besides. The author presents the theory of pathogenesis and etiology especially from the anatomic and osteologic points of view and outlines a plan of treatment. The illustrations, consisting of line drawings and reproductions of photographs, roentgenograms and colored photomicrographs, are excellent and instructive. Some of the noteworthy features are the relationship of the vertebral architecture, form and alignment to the nerve roots. The book contains anatomic diagrams showing radiculitis, ganglionitis and neuritis. The author describes the cause of pain in sacralization of the fifth lumbar. Figure 8 is an interesting diagram of the relationship of two vertebrae, their intervertebral disks, the foramen and the interarticular joint. Figures 16, 17 and 19 show the relationship of the articular facets of the lumbar vertebrae and illustrate the anomaly of tropism, of which the author has written previously. The anatomic demonstrations of arthritis of the apophysis are exceedingly well done. Figures 27, 28, 29 and 30, the demonstration of marginal osteophytes, is unusually clear. Radiographic demonstration of apophyseal arthritis is shown in diagrammatic representation and is instructive. Vertebral contraction producing sciatic scoliosis is well

demonstrated and described. The motor and sensory disturbances are discussed. The author describes his method of treatment by the Bier baker, and treatment by means of immobilization in plaster, corsets and celluloid jackets. He discusses also the surgical treatment of arthrodrosis, apophysectomy and his operation for sacralization, which is beautifully illustrated.

Therapeutic Uses of Infra-Red Rays With a Chapter on the Treatment of Sinusitis by Radiotherapy. By W. Annandale Troup, M.C., M.D., Ch.B. With foreword by Sir William Willecox, K.C.I.E., C.B., M.D. Third edition. Cloth. Price, 10s. 6d. Pp. 151, with 28 illustrations. London: Actinic Press, Limited, 1936.

This small textbook consists of a description of the therapeutics of infra-red rays and describes sources, methods of detection, indications and technic of application. There are chapters on the combined use of infra-red and ultraviolet rays, the treatment of "acutely painful conditions," the treatment of "rheumatism and allied conditions," rheumatoid arthritis, sinusitis, paresis, sprains, and long standing infections. While the book presents much valuable information on infra-red radiation and purports to serve as a plea for greater use of this valuable therapeutic agent, there is an unfortunate tendency in it toward exaggeration and an acceptance of conjecture as fact which may defeat this purpose. Such statements as the following are certain to be questioned: that infra-red radiation is "certain to give immediate relief" in the treatment of neuralgia; that infra-red radiation relieves pain "by liberating the nerve endings which have been caught up in the abnormal deposits"; that the use of "a blue filter over a certain type of heat lamp will relieve pain on extraction of teeth"; that "rheumatic conditions get well without the application of any local treatment but by means of application of general ultraviolet irradiation alone"; that acute fibrositis and neuralgia "can almost invariably be relieved and cured if seen early enough by one infra-red treatment," and that the author has "never yet seen a case of Bell's (facial) paralysis that will not clear up entirely after six properly applied infra-red treatments." The reader gains the impression that the author has fallen into the practice of applying a certain dull routine of heat applications with various types of lamps of his own devising which elaborate far infra-red rays, and that it is his custom almost invariably to follow these infra-red applications by local applications of ultraviolet radiation and general exposures to ultraviolet rays. Insufficient stress is placed on the value of simple applications of luminous heat by means of some simple source of near infra-red radiation, such as the home made "baker." It is unfortunate that many books on various phases of physical therapy have been prepared with insufficient attention to scientific detail and to controlled clinical experiment. This work is a case in point. In his conclusion the author frankly states that he presents the book with "an acute realization of its limitations." Despite these limitations, some of which have been mentioned, the text does contain much valuable information, and if the reader will discount the apparent lack of scientific proof of the author's contentions he may still read the book with considerable profit.

Physiological Principles in Treatment. By Sir Walter Langdon-Brown, M.A., M.D., F.R.C.P., Consulting Physician to St. Bartholomew's Hospital, London, and Reginald Hilton, M.A., M.D., F.R.C.P., Physician in Charge of Out-Patients, St. Thomas' Hospital. Seventh edition. Cloth. Price, \$3. Pp. 308, with 4 illustrations. Baltimore: William Wood & Company, 1936.

The contents of this excellent book, which is something more of an applied physiology than a treatise on actual therapeutics, comprise the principles of organotherapy, vitamins and the deficiency diseases, mechanical factors in digestion and indigestion, gastric and intestinal digestion, the work of the liver, uric acid and renal calculi, albuminuria and the treatment of nephritis, glycosuria, insulin and ketosis, some aspects of heart disease, the vasomotor system in disease, the life history of the red blood corpuscle, cyanosis and dyspnea, and allergy and some allergic diseases. There is a small list of principal references and a sufficiently comprehensive index. For the present edition a large portion of the work has been rewritten and there have been some modifications in the general plan. Vitamins, for example, are presented immediately after hormones, and the mechanical side of digestion precedes the discussion of its chemical phases. The separate chapters formerly devoted to intestinal toxemia and the uric acid bugbear have finally been omitted, allowing for a much abbreviated consideration of these subjects

with the topics to which they are allied. The subject of ketosis is now properly included in the same chapter as diabetes. Of the new chapters on anemia and allergy, the former is by far the more acceptable. The book, though by no means exhaustively presenting any of the subjects which it includes, will certainly and deservedly continue to hold the esteem of those who wish from time to time to peruse in thoughtful vein a review of some of the topics of main interest in internal medicine. In passing, however, one cannot help remarking the peculiar use which the British cousin sometimes makes of our language—witness the following from the work under consideration, which on the whole is written with clarity and a distinctive feeling for the use and meaning of words: "He had attempted suicide, and his brother was almost mental."

Healthy Growth: A Study of the Influence of Health Education on Growth and Development of School Children. By Martha Crumpton Hardy, Ph.D., and Carolyn H. Hofer, M.A. Cloth. Price, \$3.50. Pp. 360, with 12 illustrations. Chicago: University of Chicago Press, 1936.

This is a reference book of extraordinary exhaustiveness. It represents an investigation carried out by the Elizabeth McCormick Memorial Fund in the public schools of Joliet, Ill. For the serious student of growth and development of the healthy child, it is a book that will repay long and serious study. The volume consists of a careful description of the composition of the group of children studied, a description of the medical examinations employed and chapters devoted to the various observations, such as physical growth and development, mental growth, educational achievement, school progress and success, interests and attitudes, behavior adjustment, and influences of a health education program. There is also an extended discussion of health appraisal of school children and the rôle of health as related to development during late childhood. The data are presented in numerous tables and graphs and are exhaustively discussed. The book is a fine example of practical research and should be of great value to those in the schools who are concerned with health as a factor in educational progress. Physicians, too, should find this book a valuable discussion of normal childhood and a measure, therefore, against which deviation can more readily be evaluated.

Introduction à la chirurgie génito-urinaire. Par E. E. Lauwers. Préface du P^r. Legueu. Paper. Price, 32 francs. Pp. 197. Paris: Masson & Cie, 1936.

This book fulfils the purpose for which it was written; viz., to outline to the medical student in a brief but comprehensive manner the entire field of urology. It is written with an aim to keep the student ever in mind of the physiologic and pathologic processes responsible for the symptoms produced. Emphasis is placed on diagnosis. Treatment, though briefly outlined, is left for larger and more comprehensive works. The divisions of the book are extremely interesting. Pathologic and physiologic subject matter with associated symptoms are segregated and each is discussed from the standpoint of its relation to the urinary tract as a whole. This eliminates the customary division of upper and lower urinary tracts and is much less confusing to the beginner. In short, this book would serve as an excellent basic guide or outline which, if supplemented by outside references, would assure a comprehensive urologic course for the medical student.

Stoffwechselkrankheiten und Vererbung. Von Prof. Dr. Friedrich Curtius, Leiter der erbpathologischen Abteilung der 1. medizn. Universitäts-Klinik der Charité Berlin. Staatsmedizinische Abhandlungen, 13. Herausgegeben von Ministerialdirektor Dr. A. Gütt, Ministerialdirektor Dr. G. Frey, Staatsrat Dr. L. Contl, und Stadt-Med.-Rat Prof. Dr. W. Klein. Paper. Price, 1.80 marks. Pp. 19, with 8 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

This is apparently a reprint of a semipopular lecture on metabolic diseases and heredity, with particular reference to diabetes mellitus. It is one of a series of pamphlets published in the interests of "race hygiene." The author cursorily reviews the evidence for the influence of heredity on the incidence of diabetes and attempts to show that this same hereditary factor also predisposes to obesity, the arthritides and nervous disorders. He concludes that young persons with diabetes should be discouraged from marriage and that the mating of members of "diabetic families" should be strictly forbidden. A bibliography is appended in which the only non-German reference is a book by Joslin, not correctly titled and incompletely cited.

Les abcès du foie. Par P. Huard, professeur agrégé à l'Ecole d'application du Service de santé des troupes coloniales, chargé de cours d'anatomie à l'Ecole de médecine de Hanoï, et J. Meyer-May, chargé de cours de clinique chirurgicale à l'Ecole de médecine de Hanoï. Préface du Professeur A. Gosset. Paper. Price, 65 francs. Pp. 390, with 98 illustrations. Paris: Masson & Cie, 1936.

This monograph is a thorough discussion of all phases of abscess of the liver. The opening chapter deals with the statistics of abscess of the liver, followed by chapters on surgical anatomy, symptoms and differential diagnosis. The book includes a complete chapter on radiologic diagnosis and localization of the lesions. Two complete chapters are given to medical and surgical treatment, and short abstracts are given of more than 150 cases, with observations at necropsy in forty-three cases. An extensive bibliography forms part of the monograph. The work is well written and is a definite contribution to the subject of hepatic abscess.

Absorption from the Intestine. By F. Verzár, Professor of Physiology of the University of Basle. Assisted by E. J. McDougall, Ph.D. Cloth. price, \$9. Pp. 294, with 70 illustrations. New York, London and Toronto: Longmans, Green & Co., 1936.

In this excellent monograph on a difficult but important problem in biology and medicine, the description of the histology of the absorbing mucosa is followed by an outline of the methods used in investigation of the factors and forces of absorption, and the succeeding chapters give a brief and clear account of the facts so far known regarding the absorption of all possible substances from the stomach, small intestine and large intestine. The style is clear and concise. Of special importance may be mentioned the evidence that the adrenal cortical hormone plays an important part in the selective absorption of sugar from the intestine as well as in the intestinal absorption of fat. Some of the known factors in absorption that have so far seemed contrary to known physical and chemical factors seem to be brought into harmony with these principles by processes of resynthesis in the cells of the mucosa of large molecules from the smaller molecules absorbed. This produces a diffusion gradient from the lumen of the intestine into the cells. The monograph is a welcome addition to the scientific armamentarium not only in the research laboratory but also in the clinics dealing with gastro-intestinal disturbances.

Technique of the Love-Act: A Medical Contribution for the Advancement of the Sexo-Physiological Harmony in Marriage. By Doctor Douglas MacDougall. With Cabinet of Diagrams. Cloth. Price, \$3.50. Pp. 63. New York: Medical Press of New York, [n. d.].

Kama Sutra: The Hindu Science of Love. By Mallinaga Vagasyana. Translated from the Sanskrit by Sir Richard Burton. Introduction by Hanns Heinz Ewers. Cloth. Pp. 127, with illustrations by Mahlon Blaine. New York: Medical Press of New York, 1936.

These two volumes are promoted to the medical profession with lurid circulars sent direct by mail which give the impression that the volumes offer something extraordinary, titillating and forbidden. They are merely pamphlets bound in solid covers, poorly illustrated and poorly printed, and sold at an excessive price because of the nature of the material that they are alleged to contain. They are obviously not the type of books that are given to small children for their amusement and entertainment. Some may have considerable doubts as to their general distribution even among adults. They do contain suggestions for variation in the sex act and for rituals of excitation which may not occur to many unimaginative or inhibited individuals.

Roads to Health and Happiness. By Oscar C. Mueller. Cloth. Price, \$2. Pp. 137. New York: Prentice-Hall, Inc., 1936.

The author retired from the practice of law ten years ago and has since then given his attention to the business of living. In this volume he sets forth what he prefers to call "the results of his researches." It would be better to call his volume his observations and philosophy on life and those who live it. He discusses sixteen subjects, which include nostrums, insomnia, hobbies, divorce and the right to happiness. In the discussion on food the author is impressed with "acidosis," since he mentions it frequently and plays up the alkaline foods. He does not appear to be quite clear in his own mind on the meaning of many of the topics, since he uses phrases such as "blood cleanser" in discussing leafy vegetables. In the chapter on

tobacco the statement that "tobacco stunts growth" is the only one to which the purist will object. The author is at his best in his observations on divorce, especially those which deal with the legal phases. The physician may find this book of interest because of the many quotations from people of all the ages including the modern radio and cinema comedians. The paragraphs on health have been said before and often better, yet not all authors are as meticulous as this one in crediting sources of information.

Fille ou garçon. Comment avoir fille ou garçon. Diagnostic précoce de la grossesse. Comment connaître le sexe avant la naissance. Par le Docteur Jules Regnault. Paper. Price, 18 francs. Pp. 299, with illustrations. Paris: Editions Médicis, 1936.

This book combines the ancient history, the folklore, and the scientific and personal observation phases of the problems of predetermination of sex of offspring, early diagnosis of pregnancy, and the prenatal determination of the sex of the unborn child. The work is interesting from a historical point of view and is written in a humorous vein as though the author were sitting back with his tongue in his cheek. The part of the book dealing with pregnancy diagnosis is fairly complete, and in the discussion of methods of diagnosis of the sex of the unborn child all the diagnostic apparatus available for such diagnosis, including the Abrams machine, are described. As a scientific book for the physician's education this book would not serve: as a humorous quasiscientific bit of reading it may prove to be of interest.

A Text-Book of Inorganic Pharmaceutical Chemistry for Students of Pharmacy and Pharmacists. By Charles H. Rogers, D.Sc., Dean of the College of Pharmacy and Professor of Pharmaceutical Chemistry, University of Minnesota. Second edition. Cloth. Price, \$7. Pp. 721, with 55 illustrations. Philadelphia: Lea & Febiger, 1936.

True to its title, this volume discusses inorganic pharmaceutical chemistry. It is based on the U. S. Pharmacopeia and the National Formulary except for arrangement. In addition, the methods of commercial manufacture are described. It is nicely printed and bound. As a reference book it is excellent. As a textbook it may be differently considered. The book is a compendium of information that is easily obtained from the Pharmacopeia, the National Formulary and other books. It is more worth while to teach generalities, laws and reasons for facts than to teach masses of information as easily found and understood as is much of the information found in this book.

The Boy's Book of Strength. By C. Ward Crampton, M.D. Cloth. Price, \$2. Pp. 257, with illustrations. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1936.

Dr. Crampton has written a book that almost every boy between the ages of 8 and 15 can read with pleasure and profit. It is a simple and practical program of health management which seeks to coordinate all the social agencies that touch on the youth's daily life. The style of the book is direct and engaging and cannot help but elicit the reader's interest. The author's long experience with youth activities is admirably reflected in the organization of his text. The information is sound, stimulating and written in the boy's language. Each chapter is concise, explicit and well illustrated by diagrams. The book should be part of the library of every growing boy.

Tentatives opératoires dans le traitement de certaines psychoses. Par Egas Moniz, professeur de neurologie à la Faculté de médecine de Lisbonne. Paper. Price, 40 francs. Pp. 248, with 39 illustrations. Paris: Masson & Cie, 1936.

The author, who is known for his arterial encephalography, has ventured again into a radical diagnostic and therapeutic procedure. On the assumption that certain psychoses are due to congenital malformations of the frontal association fibers, he attempts to destroy these abnormal fibers by injecting alcohol into the white matter of the frontal lobes. He avoids producing paralysis or aphasia. His results have been encouraging to him, although, as he states, the patients are not always intellectually the same after the treatment. A good deal more work must be done experimentally before the procedure can be utilized in this country. The basis for the treatment is incomprehensible to us and we should demand much more empirical data before even thinking of using this extremely radical procedure.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Optometry Practice Acts: Advertising Fixed Prices; Injunction to Restrain Advertising.—Three registered optometrists and the Michigan Society of Optometrists, on behalf of themselves and duly registered optometrists, filed a bill to enjoin the Buhl Optical Company, a Michigan corporation with its offices at Pittsburgh, from advertising the prices of glasses and from using the statement "Scientific eye examination included," or any statement of like effect in its advertisements, such advertising being proscribed by the optometry practice act of Michigan. The trial court issued a temporary injunction and the optical company appealed to the Supreme Court of Michigan.

The difficulty, said the court, with the optical company's entire position is its belief that optometry is merely an incident to its corporate merchandising business. It overlooks the fact that optometry is a science devoted to the measurement of the accommodation and refractory powers of the eye without the use of drugs. The legislatures of the several states have recognized that the proper practice of this profession is of the most vital importance to the public and have provided not only for the licensing of optometrists after examination but for regulating the practice of the profession. The advertising of the sale of glasses with optometrical service at a price certain, continued the court, is apt to be used as a lure and bait to the unwary and as a means of deception to those who are attracted by a seemingly low price without considering the degree of skill involved. It tends to promote unfair competition against those skilled in the profession. The "barker" and others who make their livelihood out of human gullibility cannot apply their talents to human eyesight without serious consequences. The legislature of Michigan undoubtedly had these evils in mind when it adopted the optometry practice act, and reasonable statutory regulation of advertising involving professional services is proper where, in the absence of such legislation, great evils will follow.

The optical company contended, apparently, that since it employed only licensed physicians and surgeons, the optometry act did not apply to it because of a proviso in the act exempting physicians and surgeons from its provisions. But, said the court, the Buhl Optical Company is not a physician or surgeon, despite the fact that it may hire only physicians and surgeons to do its optometric work. The injunction granted by the trial court was not "pointed at a medical doctor" but at a "corporation engaged in the sale of merchandise . . . who maintains . . . in connection with said merchandising business, an optometric business." The court here referred to the case of *Eisensmith v. Buhl Optical Company*, 115 W. Va. 776, 178 S. E. 695, in which the company made a futile attempt to circumvent the law by using a physician as a subterfuge. The company in the present case further contended that the restriction on advertising resulted in an unreasonable classification and deprived it of property without due process of law. The only objection, countered the court, with even a semblance of merit is the claim that the statute does not prevent physicians or unregistered optometrists from advertising that which others in the same class are forbidden. The objection that the prohibition would not apply to unregistered optometrists is not a fatal one, the court pointed out, as the act provides other penalties for the failure to register, and it is not necessary to make the prohibition against advertising applicable to one who is practicing optometry illegally. Further, the various laws regulating medical advertising have been deemed sufficient to cover the advertising of physicians practicing optometry.

The further contention was made that the plaintiffs did not have sufficient property interest in the subject matter to entitle them to an injunction and that the injunctive process may not be used for the purpose of enjoining a crime. Suit may be brought by persons, said the court, engaged in a profession or business to enjoin unfair trade and practice which would be

injurious to their interests, and the fact that such practices are punishable by criminal penalties is immaterial. The action of the trial court in granting the injunction was sustained.—*Seifert v. Buhl Optical Co. (Mich.)*, 268 N. W. 784.

Wills: Alcoholism in Relation to Testamentary Capacity.—The habitual use of intoxicating liquor to excess, said the district court of appeal, third district, California, may result in permanent insanity. To constitute insanity, however, more than dipsomania must be shown. It must be a condition of fixed mental unsoundness, and insanity cannot be presumed on proof merely of habitual drunkenness however excessive or long continued. The fact that a testator may have been under the influence of intoxicating liquor at the time he made his will does not invalidate the instrument unless he at that time had no independent comprehension of what he was doing. The intoxication of the testator, assuming it to have been established on the day of execution of his will, must have been of such a degree as to deprive him of judgment while executing the will. It must affirmatively appear that the testator was so far under the influence of liquor at the time of the execution of the will that he was incapable of comprehending the nature of his act, the extent of his property, and those who had a claim on his bounty.

The presumption is that a person is sane. It devolves on the contestants of a will to establish, not only that the testator was of unsound mind, but that at the very time he executed his will he did not have the mental capacity to know the nature of his act or the nature or situation of his property; the natural objects of his bounty, and how they would be affected by the will. On the contest of a will on the ground that the deceased was of unsound mind, it is the mental condition of the testator at the time of the execution of the will that is important. Evidence as to mental condition before or after the execution of the will is important only so far as it tends to show the mental condition at the time of the execution of the instrument.—*In re Smethurst's Estate: Smethurst v. Smethurst (Calif.)*, 59 P. (2d) 830.

Workmen's Compensation Acts: Hemiplegia Attributed to Mercurial Poisoning.—The claimant, aged 38, contracted mercurial poisoning during the course of his employment as a hatter. A hemiplegic condition developed in his right side for which the compensation commissioner allowed compensation. After the superior court had affirmed that award, the employer appealed to the Supreme Court of Errors of Connecticut.

The question before the court was whether the hemiplegia from which the claimant admittedly was suffering and by which he admittedly was incapacitated resulted from mercurial poisoning or was due to a congenital aneurysm as contended by the employer. While a paralysis resulting from mercurial poisoning, said the court, is very rare, it has been known to occur. There is no objective sign to distinguish a ruptured blood vessel resulting from aneurysm and a ruptured blood vessel resulting from mercury. An aneurysm, however, in a man of 38 years of age is a rarity. One of the witnesses for the claimant who had had much experience in cases of mercurial poisoning and who had attended and observed the claimant over a long period of time testified that in his opinion the hemiplegia was due to mercury. He found nothing in the claimant's physical condition to cause hemiplegia. Another witness for the claimant stated that, from his examination of the claimant and his experience with mercurial poisoning, the hemiplegia was due to mercurial poisoning. Physicians who testified for the employer were of the opinion that the claimant's condition was due to congenital aneurysm, basing their opinions on the fact that they had found in medical literature no authentic cases in which a paralysis of the type from which the claimant was suffering resulted from mercurial poisoning.

In the opinion of the Supreme Court of Errors, the conclusion reached by the compensation commissioner was supported by the opinions of qualified experts who stated plainly and definitely that in their professional opinion mercurial poisoning was the superinducing cause of the claimant's disability. Although the case was an unusual one, the court said, it cannot be said that the evidence of these witnesses was such that a rational mind could not believe it. The decision of the com-

missioner being based on conflicting testimony, the court felt disinclined to interfere with it. The award in favor of the claimant was, in effect, affirmed.—*Manack v. George McLachlan Hat Co. (Conn.)*, 186 A. 487.

Evidence: Admissibility of Roentgenograms for Purpose of Comparison; Right of Physician to Refresh Memory from Hospital Records.—Roentgenograms of the normal pelvic bones of a female two years older than the injured female plaintiff, said the Supreme Court of Minnesota, are admissible in evidence for the purpose of comparing them with roentgenograms of the latter's fractured pelvis bones. An attending physician, in testifying relative to the temperature and pulse of a patient, may refresh his memory by consulting the patient's hospital record which he had previously identified.—*Draxten v. Brown (Minn.)*, 267 N. W. 498.

Medical Practice Acts: Drugless Healing as Practice of Medicine.—Persons who desire to practice any branch of the healing art in Pennsylvania, even though that branch does not embrace the administration of drugs, should by this time, said the superior court of Pennsylvania, be able to understand that they cannot lawfully engage in such practice until they have complied with the requirements of the medical practice act. The judgment of the trial court convicting the defendant of practicing medicine and surgery without a license was consequently affirmed.—*Commonwealth v. Mollier (Pa.)*, 186 A. 757.

Malpractice: Ophthalmia Neonatorum in Relation to Failure to Use Prophylactic as Required by State Health Regulations.—The defendant, a physician, attended the birth of the plaintiff's baby. Four days thereafter the baby developed an infection of the eyes, which eventually resulted in total blindness of the right eye and impairment of vision in the left eye. Suit was instituted against the physician, attributing the infection and its results to his negligence in caring for the child at and after birth. In the trial court the jury disagreed but the court, on motion of the defendant, dismissed the case on the ground that the evidence was insufficient to sustain a verdict for the plaintiff. Thereupon the plaintiff appealed to the Supreme Court of Washington.

Ophthalmia neonatorum, said the court, is an infection in the eyes of the new-born and although the term may be applied to any infection, it is generally accepted as indicating the presence of gonococci. As a precautionary measure, the state health regulations require that at birth a solution of silver nitrate or mild protein silver [argyrol] shall be put in the infant's eyes. When the prophylactic is used, ophthalmia neonatorum develops in only one case in a thousand; when it is not used, the infection develops in 10 per cent of the cases. In the present case the prophylactic was not used. According to the evidence, on the afternoon of the third day the mother noticed that the eyelashes of the baby's left eye were covered with "matter" and stuck together. The following day she spoke to the physician about the condition and he told her that he would take care of the child's eyes, expressing the opinion that he thought the condition was the result of a cold. The condition gradually grew worse, the purulent discharge increasing day by day. When the mother left the hospital, a nurse advised her to put one drop of 5 per cent mild protein silver [argyrol] in the baby's eyes twice a day and wash them every three hours with a solution of boric acid. Subsequently the right eye became infected and the discharge from the eyes became streaked with blood. Finally the defendant advised the parents to take the child to an eye specialist, who caused laboratory tests to be made of the discharge from the eyes. The laboratory reports failed to show the presence of gonococci. This specialist diagnosed the condition as conjunctivitis and attributed it to closure of the nasal ducts.

There was no direct testimony that the child was suffering from a gonorrheal infection. A number of experts testified that the treatment given by the parents was proper and adequate for the condition described. This testimony, the court thought, was predicated on the assumption that the infection was not gonorrheal. While the laboratory reports on the smears taken from the eyes indicated that no gonococci were present, this fact, the court said, did not eliminate a diagnosis of gonorrheal infection if a clinical examination so indicated.

The failure to administer the prophylactic constituted negligence, viewed either as a violation of the state health regulations or as a departure from accepted practice. Whether the infection was gonorrheal and whether it was the proximate result of such negligence were for the jury to say. In the opinion of the Supreme Court, therefore, the trial court erred in dismissing the case and it was remanded to the trial court for further proceedings.—*Jordan v. Skinner (Wash.)*, 60 P. (2d) 697.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 7. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Releah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Montana Medical Association of Great Falls, July 13-14. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- New York Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
- Society of Surgeons of New Jersey, Englewood, May 26. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
- South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.
- West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

G: 293-316 (March) 1937

- Some Recent Advances in Orthopedic Surgery. S. R. Terhune, Birmingham.—p. 293.
Diagnosis and Treatment of Pain About the Face and Head: Comprising Major Types of Neuralgia. W. M. Craig, Rochester, Minn.—p. 296.
Notes on High Eosinophil Counts in Arsphenamine Poisoning. G. Walsh and C. S. Stickley, Fairfield.—p. 299.
Skeletal Traction. F. L. Chenault, Decatur.—p. 300.
Hay Fever in Alabama: I. The Flora of Alabama. C. K. Weil, Montgomery.—p. 302.
Fractures of Lower End of Tibia and Fibula. C. L. Guice, Gadsden.—p. 305.

American Journal of Hygiene, Baltimore

25: 187-420 (March) 1937. Partial Index

- Studies on Oocyst Production in Avian Coccidiosis: I. Dilution Count Technic. D. C. Boughton, Princeton, N. J.—p. 187.
Id.: II. Chronic Isosporan Infections in Sparrow. D. C. Boughton, Princeton, N. J.—p. 203.
*Studies on Yeastlike Organisms Isolated from Mouths and Throats of Normal Persons. Ramona L. Todd, Minneapolis.—p. 212.
Experience in Vaccinating Against Yellow Fever with Immune Human Serum and Virus Fixed for Mice. W. A. Sawyer, New York.—p. 221.
*Study of Objective Efficacy of Liver Therapy in Pernicious Anemia Based on Recorded Mortality Data. A. H. Sellers, Toronto.—p. 259.
Application of Paired Feeding Method to Studies of Chemical Changes in Blood of Dogs Following Suprarenalectomy. H. G. Day, H. D. Kruse and W. M. Firor, Baltimore.—p. 269.
Effect of Direct Animal Passage on Pathogenicity of Endamoeba Histolytica for Kittens. H. E. Meleney and W. W. Frye, Nashville, Tenn.—p. 313.
Localization of Trichinella Spiralis in Muscle of Its Host. C. H. Scheiffey, Rochester, Minn.—p. 349.
Subcutaneous Smallpox Vaccination with Bacteria Free Vaccine. E. Gallardo and J. Sanz.—p. 354.

Yeastlike Organisms in Mouths of Normal Persons.—Todd found, by culture studies, that 14 per cent of 1,000 normal individuals harbored *Monilia albicans*. In 7 per cent the organism was present in both the mouth and the throat, in 3.1 per cent the organism was obtained only from the mouth, and in 3.9 per cent only from the throat. There was a higher incidence in women, as 18.2 per cent of 527 women yielded the organism, while it was present in only 9.3 per cent of 473 men. Of the serums tested from 1,150 normal persons 259, or 22.5 per cent, agglutinated *Monilia albicans*, but only thirty-five reactions were of a titer of 1:160 or above. Results showed that agglutinins for *Monilia* were present in the serums of 30.4 per cent of 533 women and 15.7 per cent of 617 men. There is a relationship between a high titer of agglutinins in the serum and the presence of *Monilia albicans* in the mouth and throat.

Efficacy of Liver Therapy in Pernicious Anemia.—Sellers investigated objectively the extent of the prolongation of life of persons dying of pernicious anemia since 1926. Despite the wide differences in mortality from pernicious anemia throughout the world an abrupt decline is noted in a group of widely separated representative countries. The trends in mortality in each instance are remarkably alike. An abrupt alteration of the trend of mortality from pernicious anemia occurred in 1927 coincident with the general introduction of liver therapy as specific treatment in this disease. The low level of mortality reached in 1927 and 1928 has in general been well maintained. Reduction in mortality from pernicious anemia has been most marked at young ages but has occurred in all age groups up to 70 years.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

37: 293-432 (March) 1937

- *Skeletal Changes in Chronic Hemolytic Anemias (Erythroblastic Anemia, Sickle Cell Anemia and Chronic Hemolytic Icterus). J. Caffey, New York.—p. 293.
Roentgen Diagnosis of Neuroblastoma in Children. E. L. Rypins, Bloomington, Ill.—p. 325.
Diaphragmatic Hiatus Hernia. I. I. Cowan, Milwaukee.—p. 333.
Influence of Extrabiliary Disease on Function of Gallbladder: Cholecystographic Study. C. A. Good Jr. and B. R. Kirklin, Rochester, Minn.—p. 346.
Treatment of Cancer in the Region of the Ear. G. E. Pfahler and J. H. Vastine, Philadelphia.—p. 350.
Relative Importance of Histologic Analysis in Tumor Therapy. F. C. Helwig, Kansas City, Mo.—p. 358.
Microscopic Grading of Tumors: Its Interpretation, Limitations and Relation to Radiosensitivity. W. C. MacCarty, Rochester, Minn.—p. 365.
*Radium Poisoning: II. Quantitative Determination of Radium Content and Radium Elimination Rate of Living Persons. R. D. Evans, Cambridge, Mass.—p. 368.
Double Contrast Method in Roentgenography of Gastro-Intestinal Tract. M. H. Poppel, New York.—p. 379.
Unusual Congenital Anomalies: Report of Case. M. M. Pomeranz, New York.—p. 382.
Factors Influencing Quantitative Measurement of Roentgen-Ray Absorption of Tooth Slabs: VII. Sensitometric Factors. H. C. Hodge, R. B. Wilsey, G. Van Huysen and S. L. Warren, Rochester, N. Y.—p. 385.

Skeletal Changes in Anemias.—The earliest lesion of the skull that Caffey found in twenty-one cases of erythroblastic anemia studied roentgenologically was thickening of the lower frontal squamosa. Radial striations developed first in the anterior portion of the parietal bones near the sagittal suture. The sequence of thickening of the calvarium and the sequence of striation of the calvarium are described. The frontal bone was the site of the earliest and most marked thickening. The earliest lesion in the long bones was dilatation of the medullary canals with simultaneous atrophy of cortical bone and of cancellous bone. Reticulation in the long bones appeared several months after the first changes were apparent. The late skeletal changes in a long-standing severe case were osteosclerotic due to late increase in cancellous bone. Two mild cases with late onset had no diagnostic changes in the skeleton. No significant skeletal changes were found in the long bones of fifteen cases of sickle cell anemia. Ten cases showed thickening of the calvarium similar to that in erythroblastic anemia. Vertical striations of the skull were not present in any case. In contrast to erythroblastic anemia, the parietal bones showed more marked involvement than the frontal. Also in six cases of chronic hemolytic icterus no significant changes were seen in the long bones. Two cases showed thickening and striation of the calvarium similar to that of erythroblastic anemia. In both cases the parietal bones were more involved than the frontal. No roentgen or clinical signs of premature synostosis of the cranium were present in this group of six cases.

Radium Poisoning.—Evans describes a technic for determining the radium content of a living person which is many times more sensitive than former methods and permits the quantitative detection of a small fraction of a "fatal dose." No postmortem analyses, phantoms or cadavers are involved. By electrical detection of the radiations emitted by radioactive substances, these elements may be quantitatively determined in amounts millions of times smaller than would be possible by chemical analysis. In some cases the penetrating gamma radiation emitted from a material containing radioactive substances permits analysis for these substances without the necessity of removing a sample, it being sufficient to place a sensitive gamma-ray detector in the neighborhood of the material to be examined. When smaller quantities (order of a million millionth of a gram) of radium are involved a discrete sample is necessary. Part (about 45 per cent in chronic cases) of the total amount of radium stored in the skeleton and tissues of a victim of radium poisoning gives rise to radon (radium emanation) in the expired breath. The radon, and consequently the amount of radium producing it, is determined by electrical tests on the expired air. The remainder of the body radium is determined by the gamma rays from its decay product, radium C. A general method for determining the amount of a gamma-ray emitting radioactive substance in a closed and inaccessible container is described. Through its application to the feeble gamma rays observed a meter from

a victim of radium poisoning, the radium C content of the patient has been determined. The method corrects for scattered gamma rays, internal absorption of gamma rays by the body itself and for the nonuniform distribution of radium in the various bones and tissues. The quantum counters are then directly calibrated for rapid measurement of the radium C content of other human victims in terms of the observed gamma radiation near the spine, hips, jaw or chest. The rate of loss of radium by the patient is directly measured by radium analyses of the feces and urine; for chronic cases 0.005 per cent daily is eliminated, 91 per cent in the feces and 9 per cent in the urine. The mobilization of radium within the body is studied by radon analyses of specimens of alveolar air. Simple gamma-ray examinations of patients will detect chronic radium poisoning five or ten years before any clinical symptoms appear.

Annals of Medical History, New York

9: 101-200 (March) 1937

- The Poet Keats' Trip to Scotland July 1818. R. Armstrong-Jones, London, England.—p. 101.
Iron Votive Offerings of St. Leonhard. J. M. Thorington, Philadelphia.—p. 111.
Claude Bernard's Posthumously Published Attack on Pasteur and Pasteur's Defense. J. M. D. Olmsted, Berkeley, Calif.—p. 114.
Early History of Elephantiasis of Scrotum. J. B. Penfold, Newcastle-on-Tyne, England.—p. 125.
Philip Syng Physick's Last Major Operation. A. Randall, Philadelphia.—p. 133.
Hamlet's Melancholy. J. W. Draper, Morgantown, W. Va.—p. 142.
Medical Thermometry. H. A. McGuigan, Chicago.—p. 148.
Comparative Study of Medicine Among Ancient Races of the East: Egypt, Babylonia and Assyria. P. J. Moorad, New Britain, Conn.—p. 155.
Doctors and the Practice of Medicine in Early Nassau County, N. Y. C. R. Hall, Garden City, N. Y.—p. 168.
The Doctor on the Stage: Medicine and Medical Men in Seventeenth Century English Drama. H. Silvette, University, Va.—p. 174.

Archives of Neurology and Psychiatry, Chicago

37: 715-982 (April) 1937

- Adolf Meyer. C. M. Campbell, Boston.—p. 715.
Adolf Meyer, the Teacher. F. G. Ebaugh, Denver.—p. 732.
Psychobiologic Unit as Pattern of Community Function. G. S. Stevenson, Red Bank, N. J.—p. 742.
Amnesia. R. D. Gillespie, London, England.—p. 748.
Psychiatry in China. R. S. Lyman, Peiping, China.—p. 765.
Latency of Cortical and Retinal Action Potentials Induced by Illumination of the Eye. Ging-Hsi Wang, Nanking, China.—p. 772.
Cerebral Circulation: XLV. Vasodilation in Pia Following Stimulation of Geniculate Ganglion. H. S. Forbes, Gladys I. Nason, S. Cobb and Ruth C. Wortman, Boston.—p. 776.
Psychic Phenomena in Association with Cardiac Failure. N. D. C. Lewis, New York.—p. 782.
Psychopathology of Metaphor. W. Muncie, Baltimore.—p. 796.
Aversion and Negativism. O. Diethelm, New York.—p. 805.
Relationship of Declining Intelligence Quotients to Maladjustments of School Children. Esther Loring Richards, Baltimore.—p. 817.
Pathogenesis of Hallucinations and Delusions: Remarks on Distinction Between Pathogenesis and Etiology in Psychiatry. M. Levin, Harrisburg, Pa.—p. 839.
Contributions to Physiology of Conditioned Reflex. W. H. Gantt, Baltimore.—p. 848.
Dilemma of Growth. F. H. Allen, Philadelphia.—p. 859.
Type of Neurotic Hypomanic Reaction. B. D. Lewin, New York.—p. 868.
Modifications in Schizophrenic Reaction with Psychoanalytic Treatment. L. S. Kubie, New York.—p. 874.
*Studies in Schizophrenia: Chemical Analyses of Blood and Cerebrospinal Fluid. S. Katzenelbogen, Baltimore.—p. 881.
Personality Features and Reactions of Subjects with Migraine. H. G. Wolff, New York.—p. 895.
Prognosis in Child Psychiatry. L. Kanner, Baltimore.—p. 922.
Syphilitic Arachnoiditis of Optic Chiasm. L. Hausman, New York.—p. 929.
Colloid Cyst of Third Ventricle: Report of Case; Operative Removal with Section of Posterior Half of Corpus Callosum. J. H. Trescher and F. R. Ford, Baltimore.—p. 959.
Catathymic Crisis: Clinical Entity. F. Wertham, New York.—p. 974.

Analyses of Blood and Cerebrospinal Fluid in Schizophrenia.—Katzenelbogen reports his observations obtained in a study of nineteen different constituents in the cerebrospinal fluid of twenty schizophrenic or parergastic patients. These data were derived from special investigations of blood and cerebrospinal fluid withdrawn simultaneously and analyzed. As far as could be established in tracing the beginning of serious disorders before hospitalization, the duration of the psychoses ranged between three months and fifteen years. The main clinical facts show the presence of manifold parergastic reactions,

with delusions of persecution and habit deterioration standing out conspicuously as to frequency. In only three of the twenty patients were values for all the nineteen constituents determined for both blood and cerebrospinal fluid within normal limits. In each of the remaining seventeen patients, one or another component proved to be abnormal either in the blood or in the cerebrospinal fluid or in both. With regard to frequency, the potassium content was increased in eight cases, the lactic acid content in seven, the cholesterol content of the cerebrospinal fluid in seven, the globulin content in the blood in four, the amino acid nitrogen in four, the total protein and globulin in the cerebrospinal fluid in two and the total protein and albumin in the cerebrospinal fluid in two, while the calcium content was decreased in the cerebrospinal fluid in three. The value for free cholesterol in the blood was low as compared with that for total blood cholesterol in two cases. The uric acid content of the blood was decreased in one case.

Archives of Ophthalmology, Chicago

17: 579-764 (April) 1937

- Acetylcholine in Treatment of Acute Retrobulbar Neuritis. W. F. Duggan, New York.—p. 579.
Traumatic Glaucoma: Anatomic and Clinical Study. A. Tillema, Eindhoven, Netherlands.—p. 586.
Dark Adaptation as Clinical Test: Further Studies. J. B. Feldman, Philadelphia.—p. 648.
Spasm of Central Retinal Artery in Raynaud's Disease: Report of Case. R. G. Anderson and E. B. Gray, Spartanburg, S. C.—p. 662.
Glaucoma Clinic of the Herman Knapp Memorial Eye Hospital. M. J. Schoenberg and B. Esterman, New York.—p. 666.
Modified Subconjunctival Extraction of Cataract: Preliminary Report. H. C. Ernsting, Cleveland.—p. 674.
Prognosis of Postoperative Sympathetic Ophthalmia: Statistical Study. H. H. Joy, Syracuse, N. Y.—p. 677.
*Optic Encephalomyelitis: Report of Case. J. Rosenbaum, Montreal.—p. 694.
Scleromalacia Perforans: Report of Case. S. P. Oast, New York.—p. 698.
Organization of the Department of Ophthalmology of Long Island College of Medicine. J. N. Evans, Brooklyn.—p. 702.

Optic Encephalomyelitis.—Rosenbaum's patient with optic encephalomyelitis was an otherwise healthy woman, aged 34. There were rapid loss of vision of the left eye, with no recovery, and loss of vision of the right eye, with partial recovery. Paralysis of the right leg and of the abdominal muscles followed about four months after the onset of the disease in the optic pathway. The course of the ocular phenomena remained obscure until the definite signs presented themselves in the spinal cord and thus completed the picture of optic encephalomyelitis. Marked leukopenia was present during the entire course of the illness.

Archives of Surgery, Chicago

34: 565-760 (April) 1937

- Peritonitis: I. Effect on Blood Pressure of Peritoneal Content in Suppurative and in Bile Peritonitis. P. H. Harmon and H. N. Harkins, Chicago.—p. 565.
Id.: II. Effect on Blood Pressure of Protein-Free Extracts of Peritoneal Content and of Filtrates from Pure Cultures of Bacteria. P. H. Harmon and H. N. Harkins, Chicago.—p. 580.
*Use of Extravasating Dye as Measure of Skin Permeability to Bacterial Invasion. M. Pijon and S. Wheeler, Boston.—p. 591.
Juxta-Articular Adiposis Dolorosa: Its Significance and Relation to Dercum's Disease and Osteo-Arthritis. D. H. Kling, Los Angeles.—p. 599.
Treatment of Brain Abscess Associated with Extracapsular Necrosis and Suppuration. J. E. J. King, New York.—p. 631.
Incidence of Gallstones in Sweden: Correlation of Gallstones with Various Diseases and Pathologic Changes. K. M. Martensson, Stockholm, Sweden.—p. 650.
Chondromatosis of Joints. E. Freund, Venice, Fla.—p. 670.
Use of Homologous Bone Grafts in Cases of Osteogenesis Imperfecta. A. D. Smith, New York.—p. 687.
Traumatic Rupture of Congenital Cyst of Choleodochus. T. G. Blocker Jr., H. Williams and J. E. Williams, Galveston, Texas.—p. 695.
Prevention of Formation of Urinary Calculi in Patients with Orthopedic Problems. C. C. Higgins and F. C. Schlumberger, Cleveland.—p. 702.
Phlegmon of Colon: Report of Case. J. Burke, Buffalo.—p. 721.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Himmelfarb, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. J. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn., and V. J. O'Connor, Chicago.—p. 732.

Extravasating Dye as Measure of Skin Permeability to Bacterial Invasion.—The subject of disinfection of the skin divides itself into surgical disinfectants and the disinfective power of the skin itself. It is with the latter aspect

that Pijoan and Wheeler are concerned. While results in the literature proved suggestive, they felt that the methods used did not afford a very exact evaluation of percutaneous bacterial invasion as an active process. They thus found it necessary (1) to measure the degree and presence of percutaneous bacterial invasion, (2) to determine how rapidly the self-disinfecting power is restored to the shaven skin and (3) to determine if shaving modifies the intracutaneous spread of bacteria. Their contention is that shaving increases the susceptibility of the skin to bacterial penetration, possibly owing to minute abrasions caused by the razor on the keratinized epithelium or to a defense process in the horny layer. It seems reasonable to suggest, on the bulk of evidence contributed by other investigators and by their experiments, that shaving before an operation should take place at least thirty hours previous to the incision. It is not denied that after an operation more bacteria penetrate the wound than the surrounding skin, even though freshly shaven, but they suggest that newly shaven skin is more likely to have pathogenic organisms lodged in the cutaneous tissues, and it is through these tissues that the initial incision is made. An azo dye, T-1824, employed intravenously delimits the area of bacterial invasion and inflammation by the blue stain it imparts to infected tissues.

Colorado Medicine, Denver

34: 225-296 (April) 1937

- Interrelation of Surgical and Medical Care in Treatment of Biliary Tract Disease. H. A. Black, Pueblo.—p. 238.
Blood Dyscrasias in Childhood. J. W. Ames and W. W. Barber, Denver.—p. 241.
Occurrence of Carcinoma in Clinically Benign Prostatic Obstructions. G. M. Myers, Pueblo.—p. 248.
Diagnosis and Treatment of Peptic Ulcer. T. D. Cunningham and J. C. Mendenhall, Denver.—p. 261.

Florida Medical Association Journal, Jacksonville

23: 413-476 (March) 1937

- Treatment of Erysipelas by Ultraviolet Ray. Annette M. Bieker, St. Petersburg.—p. 427.
*Pruritus Without Primary Skin Lesions. L. B. Mount, St. Petersburg.—p. 429.
The Progress of Medicine. A. J. Wood, St. Petersburg.—p. 433.
Application of Psychiatry to School and Business. W. C. McConnell, St. Petersburg.—p. 435.

Pruritus Without Primary Skin Lesions.—Mount defines pruritus as a disturbance of the nerve elements of the skin, a paresthesia. It is an anomaly of feeling, not dependent primarily on local lesions or changes or local irritations, and not denoting any increase or decrease of the normal sensations. Jacquet claims that an itchy area is in a state of prurigenous hyperesthesia and that following a prolonged scratching it goes into a state of hypesthesia. The etiologic factors producing itching of the skin may be divided into internal and external. The internal may occur by means of the nervous system or through the blood or lymph. The dependence on the psyche must be borne in mind therapeutically because it is sufficient to keep out of the patient's consciousness the fact that healing has already been accomplished. Granted that the sickness causing the itching has been cured, the pruritus may still torment the patient. He fears it, he thinks about it, he broods over it; in fact, it becomes the all-possessing idea and that is sufficient through psychic means to keep up the paresthesia which was set loose by somatic disturbances removed by this time. The physician must be keen enough, whenever possible, to charm away the suggestive influence by suggestion as well as by a firm assurance of the cure. Sometimes itching of the skin is due to organic changes in the central nervous system. Various central organic conditions have had pruritus associated with them. In itching by way of the hematogenous route there must be in the blood stream changes that alter the nerve endings in the skin, either the corpuscles of Vater and Meissner and the end knobs of Kraus or the free, fine, non-medullated fibrillae. There is a large group of cases in which the pruritus is due to a susceptibility of the skin to some external excitant. This excitant may be of the most varied type, for instance, a puzzling recurrent pruritus of the left cheek due to the wearing of a boutonniere, in this case an aster; the localized itching of the neck in women due to exposure following shingling and bobbing of the hair; a pruritus of the face coming each week and finally found to be

caused by a susceptibility to the colored sheet of the Sunday newspaper; the itching due to face powders, perfume itself or the odor of the latter. The causal differential diagnosis depends much on the type of pruritus. With a localized case, one certainly must seek an external irritant as the excitant. With a process involving the vulva or anus, fissures, hemorrhoids or gynecologic conditions must be excluded. Failure to examine the urine is inexcusable, as is also the failure to search for body parasites. With the generalized type, the causation may be drugs, one of the lymphomas, diabetes, focal infection, uricemia, or one of the variety of excitants which can be differentiated only by a careful study of the body liquids and the blood.

Journal of Allergy, St. Louis

8: 221-320 (March) 1937

- Oral Pollen Therapy: Experimental Considerations. C. Bernstein Jr. and J. B. Kirsner, Chicago.—p. 221.
Attempt to Produce Atopic Inhibitor Antibody in Nonatopic Individuals. M. R. Lichtenstein, Chicago.—p. 228.
Studies on Tetanus Toxoid: I. Active Immunization of Allergic Individuals with Tetanus Toxoid, Alum Precipitated, Refined. H. Gold, Chester, Pa.—p. 230.
Skin Reactivity in Cases of Asthma of Short Duration. G. L. Waldbott and M. S. Ascher, Detroit.—p. 246.
Hematologic Response in Food Allergy Eosinophilia in Leukopenic Index. T. L. Squier and F. W. Madison, Milwaukee.—p. 250.
*Is There a Correlation Between Food Dislikes and Food Allergy? W. T. Vaughan, Richmond, Va., and D. M. Pipes, Shreveport, La.—p. 257.
Allergic Edema (Quincke) Accompanied by Unusual Necrosis. C. E. Benjamins, Groningen, Netherlands.—p. 262.
Fatal Spontaneous Pneumothorax and Subcutaneous Emphysema in an Asthmatic: Report of Case with Bronchoscopic Findings. W. B. Faulkner Jr. and R. J. Wagner, San Francisco.—p. 267.

Correlation Between Food Dislikes and Food Allergy.

—In the objective as well as in the amnesic study, Vaughan and Pipes find that about one patient out of five will mention food dislikes that are subsequently found to be related to allergic reactivity. Furthermore, among the 20 per cent in which there is a correlation, many additional foods are mentioned in which there is no correlation. When foods mentioned instead of cases are considered, a much wider discrepancy is found. Among the major and the minor allergic persons of the amnesic group a total of 1,656 foods were mentioned that did not correspond as compared with a total of eighty-four foods that did correspond. In the objective group, foods that did not correspond were mentioned ninety-six times, as compared with seven foods that did correspond with positive skin reactions and seven that corresponded with borderline skin reactions. While foods disliked may be responsible for food allergy, this is not the rule, and foods disliked cannot be relied on as indicative of allergic sensitization. The one exception is those instances in which gastro-intestinal symptoms follow the ingestion of the allergenic food after such a short interval that the patient has himself recognized a relationship of cause and effect.

Journal of Bacteriology, Baltimore

33: 243-338 (March) 1937

- Cultivation of Cellulose-Splitting Bacteria on Membranes of Acetobacter Xylinum. M. Aschner, Jerusalem, Palestine.—p. 249.
Bacteriostatic and Bactericidal Action of Great Salt Lake Water. C. E. Zobell, D. Q. Anderson, Berkeley, Calif., and W. W. Smith, Salt Lake City.—p. 253.
*Streptococcus Salivarius. C. E. Safford, J. M. Sherman and H. M. Hodge, Ithaca, N. Y.—p. 263.
Streptococcus Faecalis. J. M. Sherman, J. C. Maurer and Pauline Stark, Ithaca, N. Y.—p. 275.
Streptococcus Equinus. H. M. Hodge and J. M. Sherman, Ithaca, N. Y.—p. 283.
Open System Respirometer for Study of Gaseous Metabolism of Micro-Organisms. S. E. Donovick and T. D. Beckwith, Los Angeles.—p. 291.
Filtration of Treponema Pallidum and Treponema Novyi Through Collodion Membranes. Evelyn B. Tilden, Chicago.—p. 307.
Attempts to Reveal Sex in Bacteria; with Some Light on Fermentative Variability in Coli-Aerogenes Group. J. M. Sherman and Helen Upton Wing, Ithaca, N. Y.—p. 315.
Water Content of Bacterial Spores. B. S. Henry and C. A. Friedman, Seattle.—p. 323.
Optical Activity of Lactic Acid Produced by Lactobacillus Acidophilus and Lactobacillus Bulgaricus. Lenore M. Kopeloff and N. Kopeloff, with technical assistance of J. L. Etchells and E. Posselt, New York.—p. 331.

Streptococcus Salivarius.—Safford and his co-workers limited their study to 322 cultures of nonhemolytic streptococci isolated from human throats. The isolations were made by

the application of quantitative methods so as to limit the collection to the predominating types. *Streptococcus salivarius* was found to be the prevailing type and 290 of the cultures studied are believed to be typical of the species. The remaining thirty-two cultures varied somewhat from the type, but scarcely enough to be considered separate species in the light of present knowledge of the streptococci. *Streptococcus salivarius* may be readily differentiated from any of the clearly established species of the streptococci. A full description of the organism is given.

Journal of Clinical Investigation, New York

16: 169-278 (March) 1937

- Studies of Gonococcal Infection: I. Study of Mode of Destruction of Gonococcus in Vitro. W. W. Spink and C. S. Keefer, Boston.—p. 169.
- *Id.: II. Bacteriolytic Power of Whole Defibrinated Blood of Patients with Gonococcal Arthritis. W. W. Spink and C. S. Keefer, Boston.—p. 177.
- Clinical Uses of Human Serums Preserved by Lyophile Process. A. C. McGuinness, J. Stokes Jr. and S. Mudd, Philadelphia.—p. 185.
- Response of Normal Individuals and Patients with Diabetes Insipidus to Ingestion of Water. T. Findley Jr. and H. L. White, St. Louis.—p. 197.
- Parathyroid Hyperplasia in Rabbits Produced by Parenteral Phosphate Administration. T. G. Drake, F. Albright and B. Castleman, Boston.—p. 203.
- Prognostic Value of Precipitin Test in Meningococcal Meningitis. H. E. Alexander, New York and Baltimore.—p. 207.
- *Thermal Injuries: Effects of Freezing. H. N. Harkins and P. H. Harmon, Chicago.—p. 213.
- Absorption and Excretion of Calcium and Phosphorus in Three Patients with Colostomy and Ileostomy. R. M. Johnson, Minneapolis.—p. 223.
- *Glycine Synthesis in Patients with Progressive Muscular Dystrophy. A. Thomsen, Copenhagen, Denmark.—p. 231.
- *Results of Immunization by Means of Active Virus of Human Influenza. J. Stokes Jr., Alice D. Chenoweth, A. D. Waltz, R. G. Gladen and Dorothy Shaw, Philadelphia.—p. 237.
- Absorption of Hexoses from Upper Part of Small Intestine in Man. J. Groen, Boston.—p. 245.
- Galactose Tolerance in Hyperthyroidism. T. L. Althausen and G. K. Wever, San Francisco.—p. 257.
- Studies of Urticarial Response to Blue and Violet Light in Man. H. F. Blum and R. J. West, Berkeley, Calif.—p. 261.

Bacteriolytic Power of Defibrinated Blood in Gonococcal Arthritis.—Spink and Keefer find that the whole blood from normal individuals is capable of destroying varying numbers of gonococci obtained from patients with infection. Strains of gonococci obtained from local lesions, such as urethritis, are often killed in larger numbers than are those derived from patients with arthritis. Destruction in vitro occurs by lysis and this is a function of the blood plasma and not of the polymorphonuclear leukocytes. During and following the course of a gonococcal infection, especially arthritis, there is evidence of an increase in the bacteriolytic titer of the blood plasma. This is an immune response that can be regarded as an aid in the destruction of the organism. Patients tend to develop a higher bacteriolytic titer in their serum against their own organism than against other strains. The gonococcus complement fixation reaction is a valuable method in the diagnosis of arthritis caused by the gonococcus. The titer of complement of the blood serum is not depressed during the course of gonococcal arthritis. Agglutination tests were of no value in diagnosis, since they were invariably negative. The possible significance of bacteriolysins in gonococcal infections is discussed.

Thermal Injuries.—Harkins and Harmon consider the problem of freezing from the standpoints of the local lesion and therapeutic management of the frozen member and of the general effects of freezing, including the possible presence of secondary shock and depression of the general body temperature. Their work did not help to elucidate the local treatment of a frozen member. Although experiments indicated no difference in the response of dogs' legs and rabbits' ears to slow and rapid thawing, the experiments were not conclusive. Thus this aspect of the question is still left in abeyance, although doubt is cast on the efficacy of the time-honored custom of gradual thawing. The extreme drop in general body temperature recorded in several of the experiments may have been influenced by the barbital narcosis, but the restoration of a more normal body temperature in several instances after the removal of the ice augurs against this to some extent. It is quite possible that such low temperatures would not have been obtained if a less severe freezing agent than solid carbon dioxide had been used. However, these low readings indicate that even the

higher mammals may be relatively poikilothermic under certain conditions. Secondary shock is of interest in freezing. The lowered bleeding volume, the changes in blood concentration, including increase in hemoglobin percentage and hematocrit reading, and the marked leakage of plasma-like fluid into the tissues that have been frozen indicate that there is a similarity between the effects of freezing and burning. Both these thermal injuries produce a local reaction and resultant secondary shock. Furthermore, the secondary shock following thermal injury is similar to secondary traumatic shock following other types of injury. The similarity in the reaction of the mammalian organism to injury is most apparent when the comparison is made between the different types of thermal injury. Under natural conditions it is difficult to conceive, however, a situation in which enough of the body could be frozen to produce shock without the effect of exposure to cold being an important if not a dominating factor. In burns, on the other hand, extensive local burning without rise in general body temperature is the rule rather than the exception.

Aminoacetic Acid Synthesis in Patients with Progressive Muscular Dystrophy.—Thomsen performed experiments on six patients with typical cases of progressive muscular dystrophy. On the day of the experiment and the day preceding it the patients were served an aminoacetic acid-free diet consisting of milk, cream, butter, eggs, sugar, bread baked from potato meal and whites of egg and courses prepared from these ingredients with the addition of salt and spices. It was the author's aim to give the greatest possible amount of benzoic acid during the day of the experiment, in order to get an acceptable amount of aminoacetic acid synthesized. He found that patients with progressive muscular dystrophy can synthesize almost unlimited amounts of aminoacetic acid for use in the synthesis of hippuric acid. From this the conclusion is drawn that progressive muscular dystrophy cannot be caused by a defective synthesis of aminoacetic acid and that the beneficial effect of aminoacetic acid treatment cannot be due to aminoacetic acid acting as a supplement to the organism's own insufficient production, as held by Thomas and co-workers. The experiments showed no reduction of creatinuria when benzoate was fed, so that this observation does not support the hypothesis that creatine is synthesized from aminoacetic acid.

Immunization with Active Virus of Influenza.—Stokes and his associates describe the intramuscular vaccination with active swine and human influenza virus of a group of persons in a large state colony, in the presence of an oncoming epidemic of "influenza." They vaccinated 110 persons with human virus and 138 persons with swine virus, while 550 were not vaccinated. There was a 2.7 per cent incidence of febrile cases in the group vaccinated with human virus as compared with an incidence of approximately 12.5 per cent in the other two groups. This difference is statistically significant. In a comparison of the incidence of the afebrile, the "common cold" type of infection, no significant difference was noted in the three groups. The presence of the human influenza virus during the epidemic as a probable causative agent was determined by means of neutralization tests on the serum of a number of hospitalized children in the epidemic area who had not been vaccinated. During the height of their illness no neutralizing antibodies against the human virus were found, whereas during convalescence they appeared for the first time. Studies of the nasal and throat washings from the febrile cases were not sufficient to furnish significant data. Resistance to infection and neutralizing properties of serum may be associated but probably do not always parallel each other.

Journal of General Physiology, New York

20: 511-648 (March 20) 1937. Partial Index

- Effect of Organic Ions on Membrane Potential of Nerves. W. Wilbrandt, Philadelphia.—p. 519.
- Studies in Blood Coagulation: V. Coagulation of Blood by Proteolytic Enzymes (Trypsin, Papain). H. Eagle and T. N. Harris, Philadelphia.—p. 543.
- Action of Ultraviolet Light on Spores and Vegetative Forms of *Bacillus Megatherium* Sp. F. Herik, New York.—p. 559.
- Substances Affecting Adult Tissue in Vitro: I. Stimulating Action of Trypsin on Fresh Adult Tissue. H. S. Simms and Nettie P. Sullivan, New York.—p. 603.
- Id.: II. Growth Inhibitor in Adult Tissue. H. S. Simms and Nettie P. Sullivan, New York.—p. 621.

Journal Industrial Hygiene & Toxicology, Baltimore

19: 111-154 (March) 1937

- Silicosis and Related Conditions. L. U. Gardner, Saranac Lake, N. Y.—p. 111.
- Fog Disaster in the Meuse Valley, 1930: Fluorine Intoxication. K. Roholm, Copenhagen, Denmark.—p. 126.
- Silica and Silicate Solubilities. A. C. Titus, Boston.—p. 138.
- Phase of the Problem of Acclimatization to High Temperatures. Mircea Mezincescu, Boston.—p. 146.

Journal of Lab. and Clinical Medicine, St. Louis

22: 547-656 (March) 1937

- Effect of Blood Pressor Episodes on Basophilic Aggregation Counts. G. H. Gowen, Springfield, Ill.—p. 547.
- Isotransplantation of Thyroid Glands in Dogs. B. G. P. Shafiroff and K. Leora McCloskey, New York.—p. 553.
- *Treatment of Rheumatoid Arthritis with Formalized Streptococcus Filtrate (Toxoid). A. S. Gordon, Brooklyn.—p. 559.
- Blood Chemistry in Hookworm Anemia. G. G. Villela and J. C. Teixeira, Rio de Janeiro, Brazil, South America.—p. 567.
- *Snake Venom (Moccasin) in Treatment of Epilepsy. I. Finkelman, Chicago.—p. 572.
- Duration of Immunity Following Diphtheria Prophylaxis. F. G. Jones, Indianapolis.—p. 576.
- Rouleau Formation. R. Kegerreis, Oak Park, Ill.—p. 581.
- Human Infection with Monilia: Report of Case with Cultural Data. S. H. Black and Bernice E. Eddy, Carville, La.—p. 584.
- Bacteriophage Therapy in Bacillary Dysentery. Sylvia Vaill and Gladys L. Morton, New York.—p. 594.
- Diuretic Action of Glucophylline. A. H. Maloney, A. F. Burton and J. W. L. Robinson, Washington, D. C.—p. 600.
- Hemoglobin Studies on College Women, with Especial Reference to Effect of Menstruation. Dorothy Duckles and C. A. Elvehjem, Madison, Wis.—p. 607.
- Kahn Test in Malaria. A. E. Taussig and M. N. Orgel, St. Louis.—p. 614.
- Oil Aspiration Pneumonia: Report of Two Autopsied Cases in Adults. G. H. Fetterman, Mayview, Pa.—p. 619.
- Studies on Constitution and Peptic Ulcer: IV. Salivary Secretion Test in Peptic Ulcer Patients and Normal Subjects. H. Necheles and P. Levitsky, Chicago.—p. 624.

Treatment of Rheumatoid Arthritis.—Gordon isolated strains of streptococci from 100 patients with active rheumatoid arthritis. Cultures were made from roots of teeth, tonsils, throat, nasopharynx, nose, sinus puncture, urine and stool. These were grown in beef heart broth, with a p_n of from 7.7 to 7.8. Only the strains having potent soluble toxins were used. The filtrates were then treated with formaldehyde, the same as in diphtheria toxoid. Dilutions were then made of 1:10, 1:100, 1:1,000 and 1:10,000. Treatment by subcutaneous injection was begun with 0.1 cc. of the highest dilution and increased gradually, depending on the patient's reaction to the original test dose of the toxin and the patient's reaction to the therapeutic dose. Individual dosage is essential and must be worked out for each patient. A very slight local reaction at the site of injection was considered favorable and was used as a guide in raising the dosage. The intradermal tests were used as indicators of the type of streptococcus probably responsible and the one giving the strongest reaction was used in treatment, but only in single strain. Whenever possible, autogenous material was used. Otherwise treatment was given with the stock strain giving the strongest reaction. Treatment was given twice a week and continued for at least three to six months. Occasionally a patient reached 0.1 cc. of a 1:10 dilution and could take no higher dosage except at the risk of a marked local reaction lasting many days, and at times a focal or constitutional reaction. The latter reactions are to be avoided, as they tend to bring the patient into a higher allergic state and interfere with the attempted desensitization. The clinical results, subjective and objective, were not only encouraging but astounding, even though not manifest at times before some months had elapsed. There were objective signs of definitive improvement, locally and constitutionally. Treatment was given to many types of patients in various stages of the disease.

Snake Venom in Treatment of Epilepsy.—Finkelman treated eight institutional epileptic patients for nine weeks with snake venom (moccasin). Injections of a 1:3,000 venom solution were given, beginning with an initial dose of 0.2 cc. and increasing by 0.2 cc. until a dose of 1 cc. was reached. The injections were given twice a week until the maximal dose was reached, when they were administered at weekly intervals. The course of treatment lasted nine weeks. A local reaction

in the form of erythema and swelling at the site of injection and a general reaction evidenced by an eosinophilia were observed. The frequency and severity of the seizures were compared during the periods of no treatment, during phenobarbital therapy and during the administration of venom. During the administration of venom the frequency and severity of the seizures were greater than during the other periods and the patients were more irritable. There was no correlation between the seizures and the eosinophilic response. Venom therapy does not induce a refractory state to convulsive seizures in institutional epileptic patients but renders them more susceptible to seizures. This conclusion probably is applicable also to extramural epilepsy.

Journal of Nervous and Mental Disease, New York

55: 373-504 (April) 1937

- Contribution on Origin of Increased Protein in Cerebrospinal Fluid of Tumors of Central Nervous System. J. S. Deane, New York.—p. 373.
- *Central Nervous System Complications in Subacute Bacterial Endocarditis. R. N. DeJong, Ann Arbor, Mich.—p. 397.
- Posterior Fossa Tumors Without Papilledema. I. Cohen, New York.—p. 411.
- Babinski Sign Modification Obtained Without External Stimulation: New Sign: Preliminary Report. M. H. Weinberg, Pittsburgh.—p. 416.
- Mechanism of Narcolepsy: Physiology of Autonomic Neuro-Endocrine System of Twelve Narcoleptics, Compared to Twelve Normals. E. G. Lion, San Francisco.—p. 424.

Central Nervous System in Endocarditis.—In reviewing the cases of subacute bacterial endocarditis that were seen in the University Hospital during a period of five years, DeJong found that sixty-eight cases were observed in which the diagnosis was incontrovertible. Seventeen of the sixty-eight diagnosed cases were found to present clinical or pathologic evidence of involvement of the nervous system. The central nervous system was examined in thirteen of the twenty-three necropsies, and in all these cases there were pathologic changes in the brain and/or the meninges. In six of them there were emboli or infarcts secondary to emboli. In four there were emboli in one of the major cerebral vessels or large areas of infarction secondary to a major embolism, in one there were multiple emboli with septic infarcts becoming abscesses, and in one there were multiple anemic infarcts. All these cases also showed marked edema and congestion of the brain. There were four necropsies in which there was purulent, metastatic meningo-encephalitis, mainly on the basis of multiple small abscesses in the brain substance and meninges. In addition there were three cases that showed edema, congestion and hyperemia of the brain without more specific changes. Ten of the seventeen cases with involvement of the nervous system showed definite neurologic syndromes on clinical examination. Six were admitted to the hospital because of the complications of the nervous system, two presenting the picture of meningo-encephalitis and four exhibiting evidence of embolic phenomena. In the four other cases neurologic manifestations developed that were recognized while the patients were under observation.

Journal of Urology, Baltimore

37: 335-406 (March) 1937

- Human Cloaca for Over Twenty-Five Years Without Impairment of Health. R. P. Middleton, Salt Lake City.—p. 335.
- Supernumerary Ureters with Extravesical Openings. H. D. Furniss, New York.—p. 341.
- Care of Bilateral Cutaneous Ureterostomy. A. Hyman and H. E. Leiter, New York.—p. 361.
- Diverticulum of Bladder: Report of Case of Spontaneous Rupture. R. L. Creekmur, Richmond, Va.—p. 363.
- Unusual Intravesical Projection of Enlarged Prostate Gland. G. J. Thompson, Rochester, Minn.—p. 367.
- *Tuberculosis of the Prostate Gland. R. A. Moore, New York.—p. 372.
- Chromogenic Acid-Fast Bacillus Infection of Urinary Tract. G. Sewell, J. Kasper and Norma Broom, Detroit.—p. 385.
- Lymphogranuloma Inguinale. C. L. Wilmoth, Denver.—p. 394.
- Renal Calculi: New Method for Qualitative Analysis. T. J. Domanski, Jersey City, N. J.—p. 399.

Tuberculosis of the Prostate Gland.—Moore made microscopic examinations of the sections of 678 prostates. There were 163 cases of tuberculosis of one or more organs. This is the result of macroscopic examination only. In these 163 cases tuberculosis of the prostate was found in twenty (12.3 per cent). There was bilateral involvement in thirteen and

unilateral in seven. Eleven of the twenty cases were diagnosed in the gross. In the remaining nine cases the lesions were small with a minimal amount of caseation. If caseation is not present, the identification of the small yellow tubercle among the normally yellow granular glands is difficult. Typically, the lesions are located in the peripheral parts of the posterior and lateral lobes. There are focal areas with an irregular scalloped border which may become confluent. They are rubbery or crumbly in consistency and grayish yellow or yellow. As a rule there are larger lesions at the periphery, with smaller lesions converging along the lines of the ducts. Carcinoma gives irregular white or whitish yellow foci, but they do not have a scalloped border and are firmer in consistency. Inspissation of a lipid-rich secretion gives a yellow crumbly mass but is regular in outline and may be shelled out to leave a cavity, the walls of which are smooth. The seminal vesicles may or may not be involved. In this series they were involved in only 15 per cent of the cases. The ejaculatory ducts are involved with the vesicle and the sharply outlined caseous duct is very typical. The microscopic lesions readily divide themselves in two classes: caseous foci and miliary tubercles. The earliest caseous lesion that has been observed consists of a central mass of necrotic acidophilic and basophilic cellular debris in the wall of an acinus just beneath the epithelium. The miliary tubercle is similar to those in other organs. It is clearly in the stroma and not related to acini. There is usually a central giant cell with surrounding epithelioid cells and lymphocytes. It seems most probable that the bacilli in most cases reach the prostate through the blood stream and first invade the periacinous tissue and acinous lumens. There is histologic or correlative evidence that the prostatic lesion is secondary to other urogenital tuberculosis in less than 20 per cent of the cases.

Michigan State Medical Society Journal, Lansing

36: 131-210 (March) 1937

- The Laryngologic Causes of the Great War. L. Clendening, Kansas City, Mo.—p. 131.
Carbon Monoxide Poisoning. W. H. MacCracken, Detroit.—p. 139.
The Relationship of the Michigan Department of Health to the Practicing Physician. C. C. Slemmons, Lansing.—p. 141.
Multiple Neurofibromatosis of von Recklinghausen. R. F. Weyher, Detroit.—p. 149.
Acute Cholecystitis. C. D. Brooks, Detroit.—p. 154.
Serpent Emblems of Medicine. H. L. Arnold Jr., Ann Arbor.—p. 157.

Minnesota Medicine, St. Paul

20: 199-268 (April) 1937

- The Doctor and Tuberculosis of the Future. H. E. Kleinschmidt, New York.—p. 199.
Present Status of First Infection Tuberculosis. V. O. Wilson, Baltimore.—p. 206.
Malignancy Occurring in Admissions to Glen Lake Sanatorium. C. K. Petter and E. P. K. Fenger, Oak Terrace.—p. 209.
The Name of the Doctor. A. N. Collins, Duluth.—p. 215.
Thyroiditis. M. Nordland, Minneapolis.—p. 218.
Chronic Hyperthyroidism: Nodular Goiter. T. O. Young and C. I. Krantz, Duluth.—p. 223.
Therapeutic Use of Convalescent Serum in Mumps. R. G. Hinckley, Minneapolis.—p. 227.
Hyperinsulinism with Resection of the Pancreas. W. C. Carroll, St. Paul.—p. 229.
Hemorrhoidectomy: Plastic Operation. N. D. Smith, Rochester.—p. 233.
Proposed New Diagnostic Test for Peripheral Arterial Insufficiency. G. S. Reynolds, Ah-Gwah-Ching.—p. 236.
Fracture of the Os Calcis: Apparatus for Traction. W. W. Nauth, Winona.—p. 238.

Chronic Hyperthyroidism.—Young and Krantz contend that too much emphasis has been placed on the noncritical acceptance of the results of the basal metabolic rate. This has meant that certain patients have been needlessly operated on and that others, who would have been benefited greatly by operation, have not. Too careful evaluation of the history and physical examination cannot be made. The metabolism test should be used not as a basis for diagnosis but as added evidence for or against hyperthyroidism. The exclusive acceptance of hyperthyroidism, because of an elevated basal metabolic reading, may in many cases lead to an erroneous diagnosis. Full knowledge of the fact that such conditions as nephritis with hypertension, malignant conditions, asthma, polycythemia, pernicious anemia and the leukemias may and do cause an

elevation of the basal metabolism must be accepted. Such an elevation, without goiter or clinical signs of hyperthyroidism, should suggest to the clinician a repetition of the test, plus a careful clinical search for the other factors that might be responsible. Of twenty-three cases of hyperthyroidism in nodular goiter in which there was a basal rate of from -34 to $+20$, nervousness was complained by all before operation, while after operation this symptom had disappeared. In nineteen cases there was tremor prior to operation and in four this symptom remained afterward. Emotional instability was present in twenty patients and nine still complained of this to some degree. Cardiac palpitation was complained of by four individuals and this symptom disappeared entirely after operation. Tachycardia was a common complaint, being present in twenty-two cases, but only in two was this noted to any degree later. Dyspnea was present in twenty-one individuals and it still persisted in eight after operation. Strength was below par in sixteen, but it was regained in all after operation, while loss of weight was regained in the seventeen patients who had noted it. Seventeen, or 73.9 per cent, of the patients stated that they had been cured by the operation and were now in normal health. In six, or 26.1 per cent, there had been improvement, but in no case did the operation fail to produce beneficial results. The lowest basal metabolic rate before operation was -34 . After operation the rates varied from -30 to $+16$. The mean value for the rate before operation was found to be $+2$, while after operation the value had dropped to -1.6 , a lowering of 3.6 points following thyroidectomy.

New York State Journal of Medicine, New York

37: 543-632 (March 15) 1937

- Cesarean Section. J. K. Quigley, Rochester.—p. 543.
Aural Vertigo. E. M. Atkinson, New York.—p. 555.
Hyperthyroidism in Children. G. E. Beilby and J. C. McClintock, Albany.—p. 563.
Clinical Experience with Colloidal Sulfur: In Treating Mixed and Hypertrophic Arthritis. M. M. Clark, Rochester.—p. 569.
Streptococcal Meningitis: Report of Two Recoveries. F. Coonley, St. George.—p. 573.
Retinal Method of Identification: New System of Classifying Retinal Patterns. C. Simon, New York.—p. 577.
Syphilis in Pregnancy. S. S. Paley, New York.—p. 585.

Radiology, Syracuse, N. Y.

28: 261-390 (March) 1937

- Errors in X-Ray Diagnosis of Industrial Injuries. W. W. Watkins, Phoenix, Ariz.—p. 261.
Evacuation of Gallbladder in Peptic Ulcer Patients. E. A. Boyden and T. M. Berman, Minneapolis.—p. 273.
Role of Vegetative Nervous System in Production of Motor Phenomena Observed in Upper Digestive Tract. A. C. Siefert, Oakland, Calif.—p. 283.
Noncarcinomatous Tumors of Stomach. R. A. Carter and D. R. Laing, Los Angeles.—p. 301.
Hernia of Cardiac End of Stomach Through Diaphragm. M. F. Dwyer, Seattle.—p. 315.
Primary Malignancy of Small Intestine. E. W. Rowe and J. M. Neely, Lincoln, Neb.—p. 325.
Mobility of Antrum, Pylorus, Duodenum and Gallbladder in Health and Disease: Influence of Mobility in Functioning of These Organs in Biliary Tract. N. B. Newcomer and Elizabeth H. Newcomer, Denver.—p. 339.
Attempt to Castrate Chick Embryo with X-Rays. J. M. Essenberg, Chicago.—p. 352.
X-Ray Diffraction Studies of Globular Proteins: III. Action of Formaldehyde on Proteins. G. L. Clark and J. H. Shenk, Urbana, Ill.—p. 357.
Neoplasms Involving the Duodenum. S. Weintraub and A. Tuzale, New York.—p. 362.
Vanishing Lungs: Case Report of Bullous Emphysema. R. M. Burke, Sulphur, Okla.—p. 367.

Primary Malignant Growth of Small Intestine.—Rowe and Neely state that, as a rule, symptoms of malignant tumors of the small intestine are vague before the onset of complete obstruction. Early appearance of visible peristalsis in any part of the abdomen and occult blood in the stool should make one think of tumor of the small intestine. Cases are usually diagnosed by the surgeon as intussusception or obstruction of the intestine, and the true pathologic condition has been revealed either at operation, biopsy or necropsy. Intestinal obstruction, intussusception, acute abdomen and exploration of a suspected tumor mass are the common preoperative reasons given for the operation. In most cases the roentgen examination, if

employed, has consisted of preliminary roentgenography or a routine gastro-intestinal examination, not timed for the special observation of the small intestine. Certain conditions and drugs must be understood or they complicate the picture. Hyperthyroidism causes increased motility. Myxedema causes slowness and slowed evacuation. Inanition delays evacuation. Loss of consciousness stops all movements. Atropine slows all movements. Fat delays grosser movements, and achylia increases motility. The roentgen examination of the small intestine, properly carried out, consumes time and is a relatively expensive procedure. In properly selected cases it will disclose the solution to an otherwise puzzling problem. Clinicians are recognizing more and more the value of a careful examination in obscure lesions of the gastro-intestinal tract. Positive changes depend on the stage of the disease. They are not always infallible, and because of the lateness of an opportunity to study the usual case, the observations may not be very determinate. Even positive signs may not be pathognomonic, nor does a negative examination exclude the possibility of a tumor. There must be careful and intelligent correlation of the clinical observations with the objectives of the roentgen examination. Study of the small intestine should begin when the stomach first begins to empty. After the examination of the stomach, further observation of the small intestine should be made at intervals of half an hour—at six hours for ileum, at nine hours for the ileac stasis and again at twenty-four hours for occasional ileac stasis. Ileac stasis, or gas, in the small intestine always needs explanation. A barium sulfate enema should be employed not only for colon but also for a complete ileac study. Sometimes the contrast enema is an advantage.

South Carolina Medical Assn. Journal, Greenville

33: 47-70 (March) 1937

Pathologic Grading of Malignant Tumors. T. M. Peery, Charleston.—p. 47.

Otitic Brain Abscess. N. O. Eaddy, Johnsonville, and R. Sekerak, Bridgeport, Conn.—p. 49.

Treatment of Mechanical Intestinal Obstruction by Duodenal Tube and Suction. C. R. F. Baker, Sumter.—p. 53.

Surgery, Gynecology and Obstetrics, Chicago

64: 721-848 (April) 1937

Spina Bifida Urinary Incontinence: Report of Cystometric Studies in Series of Thirty Cases with Some Suggestions Regarding Their Clinical Management. H. R. McCarroll, St. Louis.—p. 721.

Carcinoma of Colon: Study of Thirty-Eight Cases. W. F. Gemmill, York, Pa.—p. 738.

*Carbohydrate Metabolism Disturbance in Osteoporosis and Paget's Disease: Associated Soft Tissue Disturbances and Results of Various Therapeutic Procedures. R. C. Moehlig and S. Adler, Detroit.—p. 747.

Physiology of Human Cervical Mucosa. A. Wollner, New York.—p. 758.

Postoperative Wound Complications: Clinical Study with Especial Reference to Use of Silk. P. Shambaugh, Chicago.—p. 765.

*Severe and Fatal Reactions Following Intravenous Use of Gum Acacia Glucose Infusions. W. E. Studdiford, New York.—p. 772.

Uretero-Intestinal Implantation by Aseptic Method with Divisible Carrier: Modification of Simple Seven Suture Method with Probe and Cautery. F. Hinman, San Francisco.—p. 785.

Modified Agnew's Operation for Syndactylism. H. D. Cogswell and H. M. Trusler, Indianapolis.—p. 792.

Arthrodesis of Foot in Infantile Paralysis. V. L. Hart, Minneapolis.—p. 794.

Visscher-Bowman Chemical Test for Pregnancy and Urinary Pigment. J. F. Sheehan, Boston.—p. 806.

Intussusception During Pregnancy. L. Chaffin, V. R. Mason and J. M. Slemons, Los Angeles.—p. 811.

Principles of Pneumolysis. J. W. Cutler, Philadelphia.—p. 820.

Spinal Fixation: Ultimate Results in Four Cases with Pott's Disease, Verified at Secondary Operation. W. Ackermann, New York.—p. 826.

Use of Beaded Wires for Internal Fixation in Certain Oblique and Spiral Fractures of Extremities. J. E. M. Thomson and C. F. Ferciot, Lincoln, Neb.—p. 831.

Carbohydrate Metabolism in Osteoporosis and Paget's Disease.—Moehlig and Adler stress the close association between carbohydrate metabolism and osteoporosis and Paget's disease. Twenty-six patients with Paget's disease, from 34 to 67 years of age, were studied. Dextrose tolerance tests were made on eighteen, sixteen of whom had a diabetic type curve; two were normal. Of all patients, 61.5 per cent had diabetic dextrose tolerance curves; 88.8 per cent of the patients having the tolerance test were of the diabetic type, 30 per cent gave a familial history of diabetes, 83 per cent gave a familial his-

tory of obesity and 78 per cent gave a familial history of tallness. Adenomatous goiters were present in 44 per cent of the patients, of which 15.5 per cent were calcified; 32 per cent had thyroparathyroidectomy. Of the women patients, 33.3 per cent had fibroids of the uterus. Of this number, 75 per cent were calcified as shown by roentgenograms and at operation. In 15.6 per cent of the patients, renal calculi were demonstrable by roentgenograms, cystoscopy and operative removal, and gallstones were present in 11 per cent. In the osteoporotic group there were twenty-six patients. The ages ranged from 40 to 70 years. Twenty had dextrose tolerance tests, and eighteen of this number showed a diabetic type of curve. Two had normal curves, and in six no studies were made. A diabetic type of tolerance curve was evident in 70 per cent; that is, 90 per cent of those having the test showed a diabetic dextrose curve. In 34 per cent a familial history of diabetes was obtained, 70 per cent gave a familial history of obesity and 84 per cent gave a familial history of tallness. Of this group 65 per cent had adenomatous goiters, 24 per cent of which were calcified. Of this group 38 per cent were operated on, 27 per cent having had a thyroparathyroidectomy. Of the women patients, 47.6 per cent had fibroids of the uterus. Calcification was demonstrated by roentgenograms and operative removal in 30 per cent of this group. Renal calculus was demonstrable in 15 per cent by roentgenograms, cystoscopy and operative removal, and 16 per cent of all patients had gallstones demonstrable by roentgenograms or operative removal. Thyroparathyroidectomy or thyroidectomy had no permanent influence on the bone lesions or the bone pains in either disease, nor did these procedures eliminate the diabetic type of curve. No case of tetany developed after parathyroidectomy even after removal of two and even three parathyroids. No striking pathologic lesions of the parathyroids were found in either group. In the osteoporotic group the onset of symptoms frequently began at or near the menopause. The calcification of goiters and fibroids as well as renal calculi associated with frequent arteriosclerosis in both groups would indicate that the bone lesions surrender calcium to the soft tissues. The feeding of calcium, viosterol and vitamin D in these diseases would seem to be contraindicated, as this has a tendency to increase deposition of calcium in the soft tissues. So far the use of insulin and a measured diet has given symptomatic relief of pains, weakness and fatigue. Three patients with Paget's disease over a period of a year using insulin and a measured diet show that the bone lesions are stationary in two and progressive in one.

Reactions Following Intravenous Infusions of Acacia Dextrose.—Studdiford presents three cases with a syndrome characterized by cyanosis, dyspnea, tachycardia and pulmonary edema following the use of acacia dextrose solution intravenously. Two of these patients died, and one recovered and is still living. One patient came to necropsy and showed an extensive destructive lesion of the liver. The influence of acacia solution in this group is almost without question. Three other cases are reported. In two of these a similar syndrome appeared after the use of acacia dextrose. Both patients died. One necropsy was obtained and showed a liver lesion similar to that noted before, but much less advanced. The other patient showed extensive subcutaneous ecchymosis and edema limited mainly to the face and neck and occurring after the use of acacia dextrose infusion. She died a few weeks later. Necropsy showed "acute yellow atrophy" of the liver. The influence of acacia in the second group of cases is not quite as clear but is highly suggestive. Recent experimental work is reviewed showing that liver damage is likely to follow the intravenous use of acacia and that acacia causes serious disturbances of the red cells, interfering with normal gaseous interchange, increasing the tendency to rouleau formation and causing a rapid sedimentation rate. Conglutination of red cells may occur, producing capillary blockage.

CORRECTION

American Journal of Clinical Pathology.—In THE JOURNAL, May 8, page 1675, the heading for the titles appearing under the *American Journal of Pathology*, Boston, should read *American Journal of Clinical Pathology*, Baltimore.

Archives des Maladies de l'Appareil Digestif, Paris

27: 233-352 (March) 1937

- *False Roentgenograms of Cancer of Stomach. R. Savignac.—p. 233.
Endogenous Toxic Cholecystitis. C. Amerling.—p. 248.
Insufficiency of Cardia. J. Glass.—p. 266.
Blood Changes in Acute Parenchymatous Hepatitis. I. B. Schulutko, R. G. Berger, N. E. Bagryanskaya.—p. 272.

False Roentgenograms of Cancer of Stomach.—Savignac believes that the importance of a niche in roentgenograms may be disputed, especially with regard to the diagnosis of cancer. He bases his conclusions on three observations. The first patient showed a persistent prepyloric irregularity and a depression which scarcely ever was filled by opaque substance. But this depression varied in contour. Resistance, eliciting pain, was felt on palpation. The stomach was empty after five hours. The diagnosis of cancer was changed later because of the age (27 years), the inconstancy of the niche and its localization. It proved to be an alcoholic gastritis, which yielded to treatment and temperance. The second patient was a woman, aged 63, with a clinical syndrome of ulcer dating back many years. She presented a hard mass, which was painful, irregular in outline and movable on respiration. Examination for occult hemorrhage was negative, but the roentgenograms were typical of a neoplasm. An exploratory operation was refused. But the patient improved generally, although a second roentgen examination showed aggravation of symptoms. Suddenly the patient developed symptoms of paralysis agitans and died of pneumonia. The necropsy revealed an old ulcer of the anterior aspect of the stomach, but no cancer. The third patient was a man, aged 61, a hard worker and slow eater, complaining of gastric acidity and burning, especially late after meals. The opaque meal revealed a neoplastic zone of infiltration in the prepyloric region, with no pyloric stenosis but a rather narrowed passage. An exploratory operation was rejected. A second roentgen examination showed improved symptoms with beginning pyloric stenosis. In all these cases an exploratory operation would have constituted a smaller hazard than expectant treatment.

Bull. et Mém. de la Soc. Méd des Hôpitaux de Paris

53: 281-333 (March 8) 1937. Partial Index

- Grave Gonococcal Arthritis with Bony Lesions of the Cox: Two Cases. P. Jacquet, Turiaf, A. Rubens-Duval and Mme. Congy.—p. 293.
Direct Intrabronchial Specimen of Koch Bacilli and Separation of Sputum. M. Léon-Kindberg, G. Lapiné and P. Adida.—p. 302.
*Sternal Puncture in Leishmaniasis, Method of Choice. N. Lorando.—p. 314.
Contributions to Clinical Study of One-Sided Cervicopulmonary Tuberculosis. É. Bernard, A. Grossiord and L. Vildé.—p. 316.
Rotatory or Torsion Epilepsy. C. I. Urechia.—p. 324.

Sternal Puncture in Leishmaniasis.—Many physicians hesitate to puncture the spleen. They therefore seek to confirm the diagnosis by utilizing the fixation reaction after Makas-Angelopoulos or by means of other easy methods mostly in use in France and in Anglo-Saxon countries. Lorando regards the direct search of leishmanias as the only reliable method which would lead to a diagnosis. Makas (1934) was the first to utilize the marrow of the tibia for the diagnosis of kala-azar in fifteen children, eleven of whom had a positive reaction. The author in his research for leishmanias made sternal punctures in six patients in 1936 and all had a positive reaction. These cases were subsequently treated with intravenous injections of ureostibamine (about seven doses of from 0.05 to 0.12 Gm.), after which a second puncture proved altogether negative.

53: 335-353 (March 15) 1937

- *Value of Bony Marrow Puncture for Diagnosis of Mediterranean Kala-Azar. P. Giraud and Gaubert.—p. 336.
Urinary Cevitamic Acid in Treatment of Adult Scurvy. N. Fiessinger, R. Dupuy and M. Aussannaire.—p. 339.
Use of Roentgenologic Series in Examination of Deep Thoracic Lesions. P. Cottencot.—p. 344.

Bony Marrow Puncture in Mediterranean Kala-Azar.—The only proof for the diagnosis of kala-azar is the demonstration of the parasite. Giraud and Gaubert had little success with blood culture. In the puncture of the spleen they obtained a more reliable method, but it subjects the patient to an often dangerous peritoneal hemorrhage. The puncture of superficial glands is not injurious, but its results are not reliable. Punc-

ture of bony marrow gives sure results and is absolutely innocuous. Local anesthesia is not necessary and is often rejected by the patients. The authors use a small trocar, which is sterilized dry to avoid subsequent diluting of the marrow. The site of the puncture is the external aspect of the upper tibial epiphysis, about 1 cm. below the knee joint. The trocar is inserted until resistance is no longer felt and the point of the needle reaches the spongiosa, from which some marrow is withdrawn. It is then put on slides. The smallest specimens are sometimes the best, as they are not diluted. It is therefore not feasible to apply suction or to wait for blood to ascend into the trocar. If no material is obtained by the puncture, the other side should be tried. The technic is easy in infants and becomes more difficult with advancing age of the child owing to increasing ossification. The authors preferred the puncture of the spleen beyond the age of 10, as the patients would never submit to a sternal puncture. Of twenty-two cases the authors obtained fifteen positive results.

Mémoires de l'Académie de Chirurgie, Paris

63: 351-411 (March 17) 1937

- Colibacillary Peritonitis Following Supravaginal Hysterectomy. A. Gosset and P. Funck-Brentano.—p. 363.
Uricocalemia Checked by Parathyroidectomy. G. Jeanneney, M. Creys and G. Ringenbach.—p. 371.
*Intracranial Section of Auditory Nerve in Treating Auricular Vertigo. M. Ombredanne.—p. 379.
Extirpation of Large Nasopharyngeal Fibroma by Subtotal Resection of Maxilla and Conservation of Palate. G. Miginiac and Escat Jr.—p. 391.
Foci of Osteoporosis of Femoral Head and Acetabulum in Arthritis Deformans of Hip Joint: Two Cases. E. Sorrel.—p. 399.
Diagnosis and Treatment of Cerebral Traumas. C. Vincent.—p. 405.

Intracranial Section of Auditory Nerve.—Ombredanne utilizes Dandy's method in a modified form: partial section of the auditory nerve, which suppresses vertigo and pain but saves the sense of hearing. Of nineteen cases of simple Ménière's syndrome in which operation was performed, all were successful. Of seventeen patients with atypical Ménière's syndrome, fourteen were cured, two died and in one the symptoms persisted. Some of these patients were very vertiginous, were deaf in one ear, and had an intolerable tinnitus. The two deceased were chronic otorrheic patients who previously had several operations. The patient is prepared with sedatives a few days before the operation. He is made to lie on his abdomen and with his head beyond the border of the table on a special support. Under local anesthesia the incision starts about an inch and a half below the external occipital protuberance near the median line, runs obliquely upward toward the postero-superior angle of the mastoid, and goes straight down to the inner side of the apex of the mastoid. When the zone is exposed, care must be taken of the mastoid vein and of the suboccipital venous plexuses. The trephine opening is made with a large drill into the horizontal part of the occipital bone, about an inch from the posterior border of the mastoid and from the upper curved line of the occipital bone. The orifice is then rapidly enlarged by means of semicircular forceps, but cautiously lest the mastoid cells be opened. With the aid of a small hook the dura is drawn back as much as possible from the cerebellum and a crossed incision is made, resulting in four flaps. The postero-inferior aspect of the cerebellum is then raised. The arachnoid over the posterior cistern is incised. A retractor is then inserted between the petrous bone and the cerebellum and the latter is pushed slowly inward while the retractor is gradually forced deeper. Evacuation through suction of the pontocerebellar cistern gives access to the auditory nerve. The two branches of the auditory nerve are separated and the thicker, the vestibular, nerve is cut. Its two ends are receding immediately, leaving the cochlear nerve intact. The dura is then carefully sutured with fine catgut or silk and a drain of horse-hair is left for from twenty-four to forty-eight hours between it and the skin flap. Among the postoperative events may be mentioned a violent nystagmus, which disappears in from ten to twenty days, and vomiting and vertigo, which vanish soon. The same may be said of the occipital headache, the elevation of temperature (100.4 F.) and diplopia. But the original pain, dizziness and tinnitus, so strong at the time of the operation, do not return.

Presse Médicale

45: 409-432 (March 17) 1937

- Pathologic Arteriovenous Interrelations of the Limbs. L. Cornil, P. Mosinger and M. Audier.—p. 409.
Value of Aschheim-Zondek Reaction in Diagnosis of Cerebral Tumors. M. Monnier.—p. 412.
*Demianoff's Sign in Lumbago and Funiculitis. J. Vinocour.—p. 416.

Demianoff's Sign in Lumbago and Funiculitis.—Vinocour maintains that the Lasègue sign is not sufficient for the diagnosis of sciatica. It is a mosaic of different symptoms, not one of which is characteristic of the disease of the sciatic nerve alone. Demianoff of the University of Veronesh described a modification of this sign tending to convert it into a differential diagnostic sign between lumbago and sciatica. By bending the extended limb on the coxofemoral joint the corresponding half of the body becomes lowered and with it the muscle fixed to the sacrolumbar segment. Lowering stretches and traumatizes the muscle and, in case of lumbago, brings forth a sharp pain in the lumbar region. Demianoff thinks that the sciatic nerves are not responsible for pure lumbago and that for this reason the Lasègue sign is negative. The pains are not caused by the stretching of the nerve but by the distention of the affected muscles at the posterior aspect of the pelvis. He demonstrates this by fixing with one hand the anterior upper iliac tuberosity while with the other hand he elevates the leg of the same side. In this manner the pelvis is fixed and the leg can be painlessly raised to 90 degrees, while without fixing the pelvis the leg cannot be raised above 15 or 16 degrees. In the coexistence of sciatica with lumbago, Demianoff's sign is negative on the side of the sciatica, but when the opposite leg is raised there is pain before fixation and none during fixation. In double sciatica with lumbago, Demianoff's sign is again negative. Thus, in contrast with Lasègue's sign, Demianoff's sign has muscular but not nervous characteristics. However, muscular pain is not always allied with muscular rigidity. Lesions of the sciatic nerve elicit trophic alterations and accumulation of toxic products in the muscle. This is why often only a lessening of pain and not its complete disappearance is noticed in Demianoff's procedure. In a case seen by Sicard and Forestier there was a reactive inflammation of the extrameningeal part of the roots from pressure. The patient recovered after a double laminectomy of the third to fifth lumbar vertebrae. Demianoff's sign may be used as a symptom in local lesions of muscles, upper lumbar nervous roots and funicular sciatica.

Policlinico, Rome

44: 121-172 (March 15) 1937. Surgical Section

- Traumatic Nephritis: Experiments. D. Ciddio.—p. 121.
Syringomyelic Arthropathy: Case. E. Leni.—p. 134.
*Echinococcosis of Kidney. G. Millul.—p. 154.
Spontaneous Perirenal Cystic Hematoma: Case. L. Ugelli.—p. 162.

Echinococcus Cyst of the Kidney.—According to Millul, the history of the patients suffering from echinococcus cyst of the kidney and their objective and urologic examinations show the presence but not the nature of renal disturbances. Roentgen examination of the urinary tract shows the presence of renal tumor. The differential diagnosis of renal tumor and echinococcus cyst of the kidney is made from the special modification of the renal pelvis and of the calices, as shown by ascending pyelography, which is different in each condition. Entrance of the opaque substance in the cyst indicates a communication between the cyst and the renal pelvis and excludes the diagnosis of polycystic kidney. The pyelographic diagnosis is confirmed by the results of certain biologic tests. Urticaria is a sign of diagnostic value, provided the presence of idiopathic urticaria is excluded. It is due to entrance of hydatid fluid in the blood from rupture of the cyst, or to an anaphylactic reaction of the body to hydatid products. The reaction does not take place in other pathologic conditions of the kidney. Patients suffering from echinococcus cysts of the kidney have intense eosinophilia, which is not of diagnostic value because it occurs frequently in other parasitic infestations and nonparasitic pathologic conditions. Casoni's intradermal reaction of local allergy and Ghedini-Weimberg's reaction of the complement fixation are biologic tests of diagnostic value and are specific. Casoni's

reaction is specific in 92 per cent of the cases. The treatment of choice is nephrectomy, but if the latter is contraindicated a conservative treatment is resorted to. One case is reported.

Rinascenza Medica, Naples

14: 115-144 (Feb. 28) 1937

- *Diagnosis of Latent Chronic Pancreatitis. J. W. Grott.—p. 115.
Echinococcus Cyst of Scarpa's Triangle: Case. F. Rabboni.—p. 119.
Tuberculous Anemia and Liver Therapy. G. Mesirca.—p. 120.

Diagnosis of Pancreatitis.—Grott's method for diagnosis of latent chronic pancreatitis consists in the determination of the presence or coexistence of one or several of the following conditions: glycosuria, increase of the amount of pancreatic diastase in the urine and pain at the pancreas. The history in these cases shows involvement of the pancreas in previous pathologic conditions of parapancreatic organs. The presence of pancreatic pain is determined by palpation. Glycosuria is determined two hours after administration of a solution of 50 Gm. of dextrose. The increase of pancreatic diastase in the urine is determined after administration of a test meal. In determining the pancreatic diastase, freshly eliminated urine is used because the amount of diastase diminishes by exposure. Out of a group of 141 patients, a diagnosis of latent chronic pancreatitis was made in fifty-three cases from the presence of glycosuria and in eighty-eight cases from that of a painful pancreas. The test of produced glycemia gave negative results in forty-one cases in this group. The remaining forty-seven were diabetic patients. Glycosuria was not taken into consideration for the diagnosis of the coexistent pancreatitis in these cases. The amount of pancreatic diastase in the urine was increased in forty-four cases of the group. The negative results of the tests do not necessarily exclude the presence of latent chronic pancreatitis, but the number of cases in which a diagnosis can be made by the author's method is large.

Rivista di Patologia e Clin. d. Tuberculosis, Bologna

11: 162-236 (March 31) 1937

- Physiopathology of Fattening in Tuberculosis. E. Leni.—p. 161.
*Influence of Exeresis of Phrenic Nerve in Pulmonary Tuberculosis on Contralateral Lung. V. Maccone.—p. 186.
Weltmann Serocoagulation Test, Velocity of Sedimentation and Blood Changes in Extrapulmonary Tuberculosis in Patients at Near-Sea Sojourn. M. Candida.—p. 207.

Influence of Phrenic Exeresis on Contralateral Lung.—Maccone studied the results of 153 phrenico-exereses in patients suffering from unilateral or bilateral pulmonary tuberculosis. The most frequent functional modifications of the contralateral lung and hemithorax are those of the respiratory excursions of the hemidiaphragm and of the costal wall and also those of the intrapleural pressure, as well as displacement of the mediastinum. The variations do not necessarily follow phrenico-exeresis in all cases. When they take place they are unrelated to the subsequent bilateralization of tuberculosis to a normal lung and to the evolution of previously existing tuberculosis. The favorable or unfavorable evolution of preexisting tuberculosis following phrenico-exeresis in bilateral tuberculosis parallels that of tuberculosis of the lung of the side on which the operation is made. The results on both lungs are evident shortly after the operation. Bilateralization sets in after failure of phrenico-exeresis to control acute or subacute tuberculosis of the lung on the side on which the operation is done. An influence, favorable or unfavorable, of phrenico-exeresis on the contralateral lung is more frequently induced in exudative than in productive tuberculosis. The etiopathogenesis of the functional and anatomic changes induced by phrenico-exeresis is complicated. It is related to the reaction of several organic factors or to certain local or mechanical conditions created by the operation. The factors involved are (1) a general organic and local tissural reactivity to tubercle bacilli and, in this connection, action of phrenico-exeresis on immunity and local organic defenses in the given case, (2) clinical and anatomic nature of the tuberculous lesions and reaction of the lesions, (3) intensity of tuberculous and nontuberculous toxemia and its modifications, and (4) collapse or hyperdistention of the contralateral lung with consequent respiratory alterations. According to the author, phrenico-exeresis has neither a favorable nor an unfavorable direct action on the contralateral lung. Its action is indirect through modifications of several pathogenic correlated factors.

Revista de Cirugía, Buenos Aires

15: 625-692 (Dec.) 1936

- Paraperitoneal Anterior Lumbar Sympathectomy. A. Gutierrez.—p. 625.
 *Diverticula of Bladder. M. A. Llanos.—p. 635.
 Postoperative Peptic Ulcer. B. Labandibar.—p. 646.

Diverticula of Bladder.—Llanos discusses the subject of congenital diverticula of the bladder, especially from the point of view of treatment. He states that abstention treatment is indicated only in latent small or large uncomplicated diverticula, especially in the elderly. Otherwise the treatment is surgical. The operation varies with the given condition. Removal of the diverticulum through an ample suprapubic incision, followed by introduction of a sound in the bladder and of an extra-vesical drain and final suture of the incision, is indicated in uncomplicated diverticula of the bladder causing retention of urine or hematuria. In cases complicated by infection, the bladder and the diverticulum are opened and drained. Once the infection is controlled, the diverticulum is removed and the bladder treated as after removal of uncomplicated diverticula. In the presence of hypertrophy of the prostate or of the vesical neck, a cystotomy is done, the infection is controlled, the hypertrophic tissues are removed and the diverticulum is enlarged and drained. In cases of complicating lithiasis the calculi are removed through a cystotomy and the bladder and diverticulum drained. Both in hypertrophic and in lithiasic complications the diverticulum is removed at a second operation if symptoms persist after the first operation. In cases of complicating malignant tumors the operation will include removal of the diverticulum with all the involved organs, even the ureter and the kidney, if it is necessary. In cases of benignant tumors the tumor may be treated by electrocoagulation or removed and the diverticulum removed if it is necessary. In cases of diverticula associated with benignant tumors and causing retention of urine or hematuria, removal of both the diverticulum and the tumor is indicated. The author has no favorable opinion on the technic of inversion of the diverticulum into the bladder or on Geraghty's technic with resection of the diverticular mucosa. He reports three cases in which an operation was done with satisfactory results.

Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig

55: 211-318 (March) 1937. Partial Index

- Functional Examination of Diseased Colon. F. Berner.—p. 211.
 *Anatomic and Roentgenologic Aspects of Pneumatosis Cystoides Intestinalis. H. Urban.—p. 231.
 Pericardial Calcifications. O. Rummert.—p. 241.
 *Significance of Vasography as Functional Test of Peripheral Blood Vessels. M. Ratschow.—p. 253.
 An Especially Extensive Form of Honeycomb Lung. F. A. Nolte.—p. 273.
 Etiology and Diagnosis of Perinephric Abscess. V. Hormuth.—p. 277.

Pneumatosis Cystoides Intestinalis.—Urban states that pneumatosis cystoides intestinalis, in which gas cysts form in the intestinal wall, has never been diagnosed in the living patient except in the course of operative interventions. By the comparison of surgical and necropsy observations with clinical and roentgenologic aspects, it has been demonstrated that the appearance in the roentgenogram of certain areas of lesser density in the intestinal wall and interpositions of intestinal loops between the liver and the diaphragm may be of help in the diagnosis. Pneumatosis cystoides intestinalis is a rare disorder, for the world literature reports only about 140 cases. The case reported here is noteworthy because the diagnosis could be based only on the presence of pneumatotic changes in the abdominal lymph nodes, which were detected during the necropsy. The postmortem examination did not show macroscopic pneumatotic changes in the intestine; only the microscopic examination revealed remnants of changes of a pneumatotic character in the wall of the colon. This case had been under observation for several years, but in spite of careful clinical examinations it was not correctly diagnosed during the life of the patient. After the diagnosis of pneumatosis had been reached on the basis of the necropsically detected changes in the lymph nodes, the inspection of a roentgenogram that had been made in the course of the clinical observation disclosed changes in the intestinal wall indicative of the fact that at the time a pneumatosis of the large intestine existed. In roentgenograms taken four weeks after this one the pneumatotic

intestinal changes had largely disappeared. This corroborates the observation reported in the literature that the pneumatosis, which may produce ileus-like symptoms, may disappear within a comparatively short time.

Vasography as Functional Test of Peripheral Vessels.

—After reviewing previous vasographic studies and evaluating the various contrast mediums, Ratschow gives his attention to the demonstration of veins and varices, showing that the circulatory conditions can be vasographically demonstrated in every varicose region but that these tests must be made while the patient is standing. The time that elapses from the time of injection of the contrast medium to the total evacuation of the contrast blood into the deep veins gives information about the functional condition of the varicose system, and the author shows how the information thus obtained is helpful in the obliteration treatment of varicose veins. Further, he reviews studies on the lymph vessels and then gives his attention to the arterial system. He shows that, by combining the intra-arterial injection with stimuli that influence the width of the vessels, it proved possible to produce arteriograms that indicated the functional capacity of the vessels. He thinks that arteriography is permissible in those cases in which later amputation has to be considered. However, owing to the danger of possible mishaps, he does not consider it advisable for general diagnostic application.

Medizinische Welt, Berlin

11: 377-414 (March 20) 1937. Partial Index

- Position of Allergy in Biologic Processes. G. Brock.—p. 377.
 Initial "Abdominal Wilson's Disease," a Polyglandular and Polyvalently Active Metabolic Anomaly. V. Schilling.—p. 380.
 *Clinical Use of Weltmann's Coagulation Reaction Together with Takata Reaction. H. Rosegger.—p. 384.
 Combined Specific and Chemotherapy of Tuberculosis. G. Schröder.—p. 388.
 *Benzene Poisoning in Rubber Gluers. E. Holstein.—p. 391.
 Dangers of Intra-Uterine Pessaries. E. Vogt.—p. 394.

Weltmann's Coagulation Band and Takata Reaction.

—After briefly stating the nature of Weltmann's coagulation band and of Takata's flocculation reaction, Rosegger reviews the literature on both tests and points out that both give information about the condition of the serum, but from different aspects. Whereas the coagulation band reveals the fibrous or exudative character of the existing disorder, the Takata reaction discloses the albumin-globulin relationship. The author further cites observations from the literature which indicate that both reactions are especially valuable in diseases of the liver and then discusses his own observations with the two tests in 168 cases. He found that in diseases of the liver the impairment of the hepatic cells is indicated by a widening of the coagulation band and that the Takata reaction reveals the degree of the impairment and the prognosis. In some cases with an abnormally wide coagulation band, the outcome of the Takata reaction indicates whether the disorder is in the liver or not. In a number of other disorders, the information obtained from the coagulation band is complemented, particularly as regards the prognosis, by the outcome of the Takata reaction. An involvement of the liver, the kidney and the bone marrow should always be taken into consideration in these cases. A narrow coagulation band usually excludes a positive Takata reaction, but nephritis may be an exception to this rule.

Benzene Poisoning in Rubber Gluers.—Holstein reports that a considerable number of workers, who were occupied in gluing together rubber materials with a solution consisting of india rubber (7 per cent) and benzene (93 per cent), complained of fatigue, exhaustion, headaches, dizziness and pains in the joints. In the evening they often felt as if intoxicated. Other complaints were fainting, loss of appetite, nausea, stomach ache, loss of weight, pallor, nasal and gingival hemorrhages and increased menstruation. There also were cases of anemia and hemorrhage, which might have been due to the action of benzene. After giving brief histories of some of the patients, the author mentions the measures that were taken to avoid further cases of poisoning. The ventilation of the shop was improved and the benzene solution of india rubber was replaced by a much less harmful benzine solution of india rubber.

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FATAL "ASTHMA"

A CLINICAL AND PATHOLOGIC CONSIDERATION
OF 187 CASES

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The original meaning of "asthma" was "panting," and today the term is being loosely applied to a variety of conditions: the so-called thymic, renal, cardiac, bronchial or other type of asthma. These may bear a slight resemblance to one another in some of their manifestations, yet they are very dissimilar in their etiology, mechanism and clinical course. Consequently, the term asthma has no universally recognized meaning or application.¹ Rackemann² advises one to regard the word as denoting a symptom and to think of it as in the same category with "headache" or "nausea" or even "angina." In the textbook by Norris and Landis,³ one finds this comment: "By the term 'bronchial asthma' is meant a form of paroxysmal dyspnea, the characteristic feature of which is a marked diminution or arrest of the respiratory movement with prolonged expiration: a condition sometimes referred to as spasmodic asthma."

The hazards of "asthma" is a subject recently investigated by certain life insurance organizations. It may not be amiss to examine their conclusions. In 1932 Old⁴ reported before the Society for the Study of Asthma and Allied Conditions an investigation carried out by the Association of Life Insurance Medical Directors. This seemed to indicate that the ratio of the actual to the expected deaths in asthmatic patients was, in 274 cases, 121 per cent plus or minus 5 per cent. In that group of individuals in whom the condition was found on examination, or the insured had had one or more attacks within five years, the death rate from organic disease of the heart was three and one-fourth times the normal. He believes that the two main causes of death in these individuals are diseases of the lungs or diseases of the heart. Dublin and Marks⁵ found in a similar series that twenty-five of the deaths in a group of ninety-nine males were from heart disease and all but three of these from organic heart disease. In males the

heart disease mortality is about two and one-third times the normal. They conclude in part as follows: "On male risks with asthma the mortality in the aggregate is 27.4 per cent in excess of the expected by the American Men Table, and 63.7 per cent by the Basic Mortality Table. The results on female risks are even worse. These mortality results, as well as the findings of earlier insurance studies on asthma, are in sharp contrast with the observations of many clinicians, with extensive experience in treating the condition, that the prognosis in asthma is excellent. As Bray strikingly puts it, 'Many asthmatics pant on to a good old age.' " These statements are indeed so much at variance with clinical experience that they are in effect a challenge.

It seemed logical to consult first the available literature on the subject of fatal asthma: the writers just mentioned seem to have ignored this point. We were early impressed by the paucity of case reports, particularly those including necropsies. The first one was by Van Leyden¹ in 1886 and the most recent one by Michael and Rowe.⁶ Coca¹ has summarized the first thirty-three cases in chronological order but omitted one case reported by Rackemann⁷ which we have included. In the discussion of these he admits that some of this group are examples of "asthma" only within the broadest use of this term. Macdonald⁸ added eight, and several other workers have published single case histories that deserve consideration. Michael and Rowe do not attempt to analyze the previous records, but they refer to the same authors and reports that we have mentioned. They add two very complete case reports. Including these, one finds a total of fifty patients, twenty-seven males and twenty-three females, represented—an average of approximately one a year since 1886. Each patient has had a postmortem examination and in most instances the report includes microscopic observations. In a few the latter are not necessary to complete the diagnosis. In order to make certain of these data available at a glance, we have arranged the males in one series and the females in another and have plotted the age at death in ascending order of magnitude from left to right. One factor that directly relates to the controversial issue raised by Old⁴ and by Dublin⁵ is the duration of symptoms. This has been plotted on the same chart whenever the data could be determined from the report.

The average age at death of the males is 48.3 years, although fourteen patients, or 51.8 per cent, exceed this mean, and the maximum is 75 years. In the group of females the average age at death, 43 years, is less than that for the males and tends to support one of Dublin's statements. Here twelve patients, or 52.2 per cent, exceed the mean age, and one lived sixty-seven years,

From the Los Angeles County Hospital, the School of Medicine of the University of Southern California, and the Santa Fe Coast Lines Hospital. Owing to lack of space, this article is abbreviated here by the omission of several case reports and illustrations. The complete article appears in the authors' reprints.

1. Coca, A. F.: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., Charles C. Thomas, 1931, p. 133.
2. Rackemann, F. M.: Clinical Allergy, New York, Macmillan Company, 1931, p. 342.
3. Norris, G. W., and Landis, H. K. M.: Diseases of the Chest, ed. 5, Philadelphia, W. B. Saunders Company, 1933, p. 320.
4. Old, Herbert: J. Allergy 4: 122-126 (Jan.) 1933.
5. Dublin, L. I., and Marks, H. H.: Mortality of Risks with Asthma, read at the 44th annual meeting, Association of Life Insurance Medical Directors of America, Oct. 12, 1933; New York City Recording and Statistical Corp., 1934.
6. Michael, P. P., and Rowe, A. H.: J. Allergy 6: 150 (Jan.) 1935.
7. Rackemann, F. M.: Fatal Asthma, Boston Med. & S. J. 104: 531 (March 25) 1926.
8. Macdonald, I. G.: Ann. Int. Med. 6: 253 (Aug.) 1932.

eight years less than the oldest male. Two reports concern children; one is a female and the sex of the other is not given. These are charted separately and are not included in the statistical analysis but will be mentioned in later discussions.

A detailed study of the duration of symptoms will be presented in subsequent charts and tables. We wish

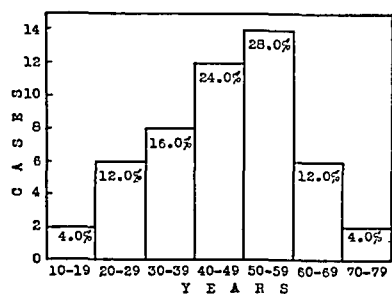


Fig. 5.—Frequency histogram by decades on the basis of age at death of fifty patients (previously reported).

to call attention to the wide variation, irrespective of age at death, in the period between the first and the last attack of "asthma." A long duration is not inconsistent with almost the maximum period of life. These two groups do not substantiate the statements made by life

insurance executives, and this discrepancy led us to search for further evidence before finally accepting either theory.

We are able to present information relative to 137 additional patients who have died with or because of "asthma." This group is composed of two subdivisions: (a) forty-eight patients (thirty-one males and seventeen females) examined, often inadequately, post mortem, and (b) eighty-nine individuals (sixty-eight males and twenty-one females) not so examined. Most of the authors who reviewed certain of the previously reported cases have limited their analysis to those with necropsy. We have adequate reasons for not so limiting our series, even though the "final" evidence is lacking in about 65 per cent. The most significant reasons are that approximately 33 per cent of the entire group carried life insurance and that the two reports in controversy undoubtedly included patients not examined post mortem.

The majority of the patients in our series died during the past eight years in the Los Angeles County Hospital. In the statistical files of that institution they are indexed under the diagnosis "bronchial asthma." In fact, that condition is given as the principal cause of death in a majority and as a contributory cause in most of the remainder. Many of the patients have been under the personal observation of one of us (L.) in the Allergy Clinic at that hospital, who carefully abstracted each history and attempted to reproduce the data without bias.

Although not especially significant to the present study, it is of interest to find so large a proportion of supposed indigent patients carrying a life insurance policy. In approximately twelve instances the principal sum could be determined, and it was found to average in excess of \$950. Twelve or thirteen patients were insured only in the Metropolitan Life Insurance Company, several carried a policy in it and also one in the Prudential, eight or nine in the latter alone, and the remaining patients were insured in various companies: many of these are also prominent "old line" eastern companies, and it is probable that not a few of these patients were included in the series studied by Old, by Dublin and Marks or by other insurance agencies.

In order that our unpublished data may be compared with those in the previous charts, we have presented them in identical form. The groups *a* and *b* are kept

separate, as are the two sexes. The patients without necropsies will be considered first. A comparison of figure 2 for males with those previously published, figure 1, shows marked agreement between the two. The average age at death is 56.9 years, and the minimum age is considerably higher than in the published series. Only 47 per cent of the patients exceed this mean age. The data relative to the three male infants in this chart will be considered later. The chart of female patients (fig. 3) compares similarly with the one of previously reported cases. Our females also show a greater average age at death (49.7 years) than either the male or the female group of published cases. Approximately 50 per cent of these exceed the mean age.

The final subdivision of our data (fig. 4) concerns the male and female patients who have had partial or complete postmortem examination. The males averaged 52.1 years at death, and 45 per cent exceeded this age. The average age of females was 49.4 years, and 47 per cent exceeded that age. These data are of greater magnitude than those relating to similar features in the published series. In all instances it is conspicuous that the females had a lower average age at death than did the corresponding group of males. This undoubtedly represents a real trend rather than the result of chance sampling. The general similarity of figures 2, 3 and 4 to those representing the world's literature on fatal "asthma" cannot be denied. The lack of relationship between the age at death and the age at onset, or the duration, of "asthma" is evident in each of the six groups. Since "asthma" is alleged to be a marked handicap to longevity, this feature will receive especial attention.

Possibly the age at death will be better visualized by making a frequency histogram of the fifty observations already published (fig. 5) and a similar one for our total series of 137 units (fig. 6). At the top of the bar is indicated the percentage of total patients each decade contains. Except for some askewness, the graph suggests the normal or probability curve. This is even

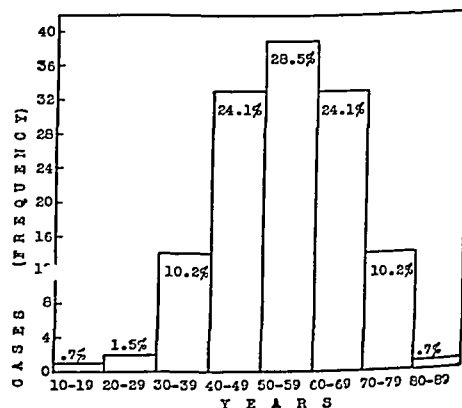


Fig. 6.—Frequency histogram by decades on the basis of age at death of 137 patients.

more notable in our series. The similarity, or even identity, of the percentage factor in several corresponding decades of the two series is the more striking since it was not anticipated. The agreement between these and other charts in the two series must be accepted as proof of the similarity of these groups.

The duration of symptoms, briefly referred to in preceding paragraphs, should not be dismissed without a more critical analysis. We believe it may be an

important factor in differential diagnosis and in determining the roentgenologic and possibly even the pathologic aspects. At least two important variables make this factor difficult to determine. One is the time elapsing between the first and the last attack of dyspnea, and the other the days, months or years during which the patient actually experienced symptoms. A patient may have an attack of asthma at an early age and then experience a complete remission for forty or more years. Symptoms may again appear a few weeks or months before death. The duration of the asthmatic state is, for example, forty years, but the actual symptoms have been present at the most but a few months. We have consistently employed the total period since the first attack to represent the duration of symptoms. No doubt the first attack has been forgotten or went unrecognized by some who appear to have had a very short duration. Such inconsistencies are inevitable in any statistical study. The duration of symptoms, irrespective of age, is the basis for sorting the patients in table 1.

By presenting these data for the two series in parallel columns, the comparison becomes more striking. A few points deserve especial emphasis: 17 per cent of our series, and 12 per cent of the published one, experienced symptoms for no more than one year. At the other extreme, practically the same proportion of each group, 20 per cent and 9.8 per cent respectively, survived twenty or more years. It was most unexpected to learn that 38 per cent and 44 per cent of each group had symptoms during so short a period as four years or less. One might ask what the relationship is between the age of the patient and the "short duration" and whether it appears only in the elderly individuals. The latter question can be answered in the negative as indicated when discussing figures 1 to 4. We compiled and compared in great detail the data for each of the 187 patients, even to determining the percentage of life represented by the duration of "asthma." These tables are too voluminous to publish, but they form the basis for table 1 and for many of the opinions expressed.

In general, it appears that certain of the patients may indeed have asthma much of their life and even "pant on to a good old age." However, "asthma" may lead to a fatal result in a few days or weeks even in the young adult. Our series, although nearly three times as large as the one previously published, does not even change the trends brought out in the latter group; in fact, it actually duplicates many of them. While there are some features that seem to be in accord with insurance statistics, we cannot accept the latter for reasons which we hope to bring out in the following paragraphs.

Early in the report we mentioned some inconsistencies in the use of the term "asthma" as a diagnosis. When used to designate typical cardiac dyspnea it ranks with edema or other signs or symptoms of a circulatory dysfunction. A study of some of these patients indicated that the dysfunction may be atypical and yet be a cause of the asthma syndrome. The literature affords adequate support for this statement and contains interesting explanations of these phenomena. Pratt⁹ has emphasized the similarity of some attacks of cardiac and bronchial asthma, "even to the expiratory type of dyspnea and are as a matter of fact often mistaken for the latter by physician as well as layman." Osler¹⁰ and McCrea, in their discussion of cardiac asthma,

offer an explanation of the mechanism: "The patients are usually over 50 years of age, and arteriosclerosis, myocardial disease, nephritis, hypertension, and coronary artery disease, some or all are present. A sudden rise in blood pressure, an aortic reflex, increased respiration and diminished blood supply to the myocardium during sleep are suggestions as to the cause." Pratt quotes Mackenzie, and seems to agree with him, that a reflex disturbance produced in some way by the weakened heart may result in an actual bronchial spasm. Many authors comment that the patients live on the average two or three years after the onset of cardiac dyspnea. This condition therefore may account for the high percentage of patients in the two series who lived but a few days or weeks, or a maximum of four years after the first attack. A reflex from the aorta in the region of the heart is commonly cited as the cause of paroxysmal dyspnea in cases of hypertension and syphilitic aortitis.

Chronic pulmonary fibrosis is a well known cause of at least one type of paroxysmal dyspnea; namely,

TABLE 1.—Frequency of Duration of Paroxysmal Dyspnea in Fatal "Asthma" in 187 Cases

Duration of Paroxysmal Dyspnea	Unpublished			Previously Published		
	Cases	Per Cent	Hemidecade and Decade, per Cent	Cases	Per Cent	Hemidecade and Decade, per Cent
1-31 days.....	12	10.4	17.3	1	2.4	12.1
32-364 days.....	8	6.9		4	9.7	
1-4 years.....	24	20.9	38.2	13	31.7	43.8
5-9 years.....	20	17.4		10	24.4	
10-19 years.....	28	24.3		9	21.9	
20 years up.....	23	20.0	61.7	4	9.8	56.1
Totals.....	115		99.9	41		99.9
Indefinite and could not be sorted....	22			9		
Grand total.....	137			50		

"miners' asthma." The fibrotic changes produced by pulmonary tuberculosis seem to be another. Repeated attacks of bronchopneumonia or chronic bronchitis likewise lead to fibrosis, and asthma may occur on this basis. Cecil¹¹ recognized the chronic nature of interstitial pneumonia (from fifteen to twenty years) and one of the important causes of that condition: "The interstitial pneumonia of influenza seems to have led to much diffuse pulmonary fibrosis." We have several examples of this in our series, and one report indicating the problem of differential diagnosis will be given in some detail.

Chest deformities may not infrequently be the cause of attacks of paroxysmal dyspnea, and the rôle of such deformities in the production of circulatory disorders has been emphasized in the Cabot case history.¹² Space does not permit us to indicate all the literature relative to these less commonly accepted causes of paroxysmal dyspnea; we feel that our data also find support in the unquoted references.

Earlier reviewers of the literature on fatal asthma have agreed that many of the reports did not apply to true bronchial asthma. In fact, one of the recent authors felt that the latter group did not then exceed

9. Pratt, J. H.: Cardiac Asthma, J. A. M. A. 87: 809 (Sept. 11) 1926.
10. Osler, William and McCrae, Thomas: Principles and Practice of Medicine, ed. 12, New York, D. Appleton & Co., 1925.

11. Cecil, R. L.: Textbook of Medicine, ed. 2, Philadelphia, W. B. Saunders Company, 1931.
12. Cabot Case History, New England J. Med. 209: 854 (Oct. 26) 1923.

sixteen. There has been little accord as to which patient one should consider typical or atypical. Of course, one point at issue is whether the asthma caused the patient's death. We shall place less emphasis on this and more on an attempt to determine the type of "asthma."

Ten¹³ illustrative histories were selected from the group with necropsies.¹⁴ In order to conserve space, only significant positive or negative observations are recorded. Nine of these reports are supplemented by appropriate photomicrographs. In several instances the clinical and the pathologic manifestations seem not to be in accord. When these inconsistencies are pronounced, the last paragraph of the abstract attempts to weigh the two points of view. Each patient is designated by the same identifying number employed in the respective chart.

REPORT OF CASES

CASE 11¹⁵ (fig. 4).—*History*.—A white man, aged 46, had complained of attacks of wheezing and dyspnea at frequent intervals during the previous thirty-two years. The condition was always worse at night and during extremes of heat or cold.

TABLE 2.—The Probable Cause of Dyspnea in Forty-One Patients (with Necropsies)

Cause of Dyspnea	Males		Females	
	Total Patients	Per Cent	Total Patients	Per Cent
Arteriosclerotic and hypertensive heart disease	6	12.2	5	35.68
"	2	7.4	0	0
"	1	3.7	0	0
"	2	7.4	4	28.56
"	3	11.1	1	7.14
Pneumoconiosis	4	14.8	0	0
Pulmonary tuberculosis	1	3.7	1	7.14
Tracheal obstruction	1	3.7	0	0
Asthma not excluded	7	25.9	3	21.4
Total	27		14	
Data incomplete (not included in percentage)	4		3	

Contact with horses seemed to have precipitated the first attack; subsequent skin tests revealed a marked sensitivity to this and other epidermals, to foods and to many pollens. Residence in various sections of the country afforded no relief, but he was symptom free when on the ocean. There was a short period of relief after an abdominal operation.

The general health had always been good. He had played football in college, often at the cost of several days of severe dyspnea; he had always indulged in strenuous exercise.

The patient's son and father had asthma. On numerous occasions examination had revealed excellent musculature and no significant pathologic condition except chronic emphysema, wheezing and prolonged expiration.

The terminal symptoms were severe dyspnea and wheezing of several days' duration, which failed to respond to epinephrine, a drug previously very effective in small doses. He would not remain in bed in spite of the fact that mild exertion aggravated the dyspnea. There was mild cyanosis, which rapidly increased toward the end. Medication afforded no relief; the respiratory excursions became less and less but did not entirely cease until the heart action stopped.

Pathologic Examination.—No thymic tissue was observed. The lungs were markedly emphysematous and failed to collapse on removal from the pleural cavities. The bronchial walls appeared somewhat thickened and the lumens throughout were

plugged with thick tenacious mucus. The lungs together weighed approximately 700 Gm. The heart weighed 300 Gm. The right ventricle was moderately hypertrophied and measured from 3 to 4 mm. in thickness. The valves and coronaries were normal. Sections of the bronchus are shown in figures 7 and 8. The anatomic diagnoses were (1) bronchial asthma and (2) hypoplasia of the circulatory system.

Clinically, this patient presented the classic personal and family history of an allergic asthma; the evidence of specific sensitivities substantiated this diagnosis.

For the sake of brevity we have not presented a complete pathologic description. The observations, however, agree with the more recent criteria of asthma, except for the absence of thymic tissue and of abnormal hyperplasia of lymphoid structures.

It should be noted that the pathologic appearance is not markedly different from that in several cases herein described in which the clinical observations are not pathognomonic of allergic asthma.

CASE 13 (fig. 4).—*History*.—A white man, aged 49, complained of recurrent attacks of moderately severe paroxysmal dyspnea and wheezing of seven and one-third years' duration. He was under observation at the hospital on several occasions during the past five years because of recurrent attacks of bronchopneumonia. He placed little emphasis on dyspnea and wheezing but more on a dry cough.

The physical signs on each admission were those of acute pulmonary infection; wheezing râles also were heard. Several x-ray examinations in the five year period revealed extensive pulmonary fibrosis. He had a residual paralysis of the right arm and leg and impairment of speech due to a blow on the head seventeen years previously. Most diagnoses that had been made were "chronic bronchitis," "pulmonary fibrosis" and "possible bronchiectasis." One or two physicians thought bronchial asthma was primary.

Relief was obtained with the usual doses of ephedrine and epinephrine.

The patient died in an attack of dyspnea.

Pathologic Examination.—The right pleural cavity was completely obliterated by dense adhesions. The left lung weighed 400 Gm., the right 455 Gm. and both were markedly emphysematous and contained large bullae. The bronchi were prominent and in places the walls were thickened.

The heart weighed 250 Gm. There was a slight hypertrophy of the right ventricular wall. In the anterior and inferior portion of the septum there was an area of fibrosis with a diameter of about 3 cm., which was the site of an old infarction. The coronaries were very tortuous and calcified. The lumens were reduced to pinpoint openings by closely placed atherosclerotic plaques.

Microscopic examination revealed numerous villus-like projections of the wall of the bronchus into the lumen that in places were partly covered by thickened stratified squamous epithelium (fig. 9). The lumen was filled with desquamated epithelial cells, mucus and leukocytes of various types. The muscle was only moderately hypertrophied. There was much cellular fibrous tissue about this bronchus, which extended out into the lung tissue. The wall throughout was heavily infiltrated with round cells, polymorphonuclear leukocytes and very few eosinophils.

In the 10 mm. bronchus, the wall was definitely thickened, and in places there were circular and radiating scars. There was a moderate smooth muscle hypertrophy and a thin hyalinized basement membrane. The epithelium was thrown into coarse villus-like folds, which in many instances had become detached from the wall. The wall was infiltrated throughout with round cells, plasma cells, a few polymorphonuclear leukocytes and eosinophils.

The anatomic diagnoses were: (1) local arteriosclerosis, coronaries, with scars in the heart muscle and an old healed infarction of heart, (2) chronic bronchitis, (3) emphysema and (4) chronic, adhesive pleurisy.

CASE 28 (fig. 4).—*History*.—A white man, aged 65, complained of dyspnea, wheezing and choking, of nine years' duration. The condition was always worse in cold, damp weather.

13. Six of this number are presented only in the authors' reprints.
14. It is impossible to designate herein each individual whose work has been invaluable to us. Particular mention should be made of Dr. Newton Evans, chief of the pathologic laboratory, Los Angeles General Hospital, Dr. E. M. Hall, professor of pathology, Medical School of the University of Southern California, and Dr. Ian Macdonald, whose report on the examination of the tissue from several patients we have freely incorporated in our description.
15. Dr. Robert Cocke, New York, gave us some of the data regarding this patient.

The past history revealed "dropsy" associated with "rheumatism" forty-eight years before and "dropsy" again eighteen years later. Until the past fifteen years he had been a "heavy drinker." He worked in a borax mine for several years immediately before the onset of dyspnea. He rarely had orthopnea and used but one pillow.

The patient was poorly nourished, tall and slender and had marked emphysema and prolonged expiration; toward the end some moist râles were noted along with the "music box" sounds usually present. Rough apical and aortic systolic sounds were noted repeatedly during a four year period. The blood pressure was 150 systolic, 80 diastolic. The electrocardiogram revealed sinus tachycardia. Allergic tests were negative. The condition improved for a time under vaccine therapy.

Relief was obtained with 0.15 cc. ($2\frac{1}{2}$ minims) of epinephrine (1:1,000) and three-eighths grain (24 mg.) of ephedrine, but the latter caused marked urinary symptoms.

Pathologic Examination.—The lungs were large and emphysematous. The right lung weighed 900 Gm. and contained much scar tissue. The posterior portion of the lower lobe contained areas of pneumonic consolidation. The remainder of the lung was congested. The left lung weighed 950 Gm. and was similar to the right. The walls of the large bronchi were thickened and stenosed. Beyond these stenoses they were not definitely ectatic. Everywhere there was evidence of chronic inflammation and increased fibrous tissue in their walls.

The heart weighed 425 Gm. The chambers were dilated and the right ventricle was hypertrophied. It averaged from 3 to 11 mm. in thickness. There was moderate sclerosis of the coronary arteries.

A section of the bronchus is shown in figure 13.

The anatomic diagnoses were (1) pneumoconiosis, (2) chronic bronchitis with bronchial stenosis, (3) right cardiac hypertrophy with mild congestive failure and (4) terminal bronchopneumonia.

CASE 17 (fig. 4).—*History.*—A white woman, aged 72, complained of shortness of breath and edema of the legs, face, eyelids and abdomen for the last eight weeks. She had had a chronic cough for years.

The patient had an attack of paroxysmal dyspnea eighteen years before; except for the recurrent cough she had had no other symptoms and had always been very active until eight weeks before admission. Since duration indicates the period between the first attack and death, we have used the maximum—eighteen years—in the charts.

Examination revealed obesity, marked generalized anasarca, dyspnea and prolonged expiration. There were sibilant and sonorous, also crepitant, râles throughout the chest. Wheezing was audible to the unaided ear. The heart showed the aortic second sound greater than the pulmonic second sound. The blood pressure was 140 systolic, 90 diastolic. The referring physician stated that the systolic pressure usually averaged 190 mm. of mercury. An electrocardiogram showed evidence of myocardial damage.

Death was apparently due to circulatory failure.

Pathologic Examination.—The pleural cavities were obliterated by dense fibrous adhesions. The right lung weighed 640 Gm., the left lung 600 Gm. Except for edema and minimal apical tuberculosis on the left, and emphysema, the lungs were normal.

The heart weighed 400 Gm. Its form was somewhat eccentric, owing to dilatation of the right auricle and ventricle. The wall was hypertrophied and averaged from 6 to 12 mm. in thickness. The left ventricle averaged 16 mm. One auricular appendage contained an antemortem thrombus.

Microscopic examination of a 3 mm. bronchus with cartilage showed the lining epithelium thickened and of transitional type. A moderately thick hyaline basement membrane was present. Glands were rather numerous and there was dilatation of their openings. The wall of an arteriole in the section was greatly thickened. The muscle showed only a moderate hypertrophy. The lumen was empty. The microscopic appearance of a 7 mm. bronchus is illustrated in figure 18.

The anatomic diagnoses were (1) hypertensive heart disease with congestive heart failure, (2) emphysema and (3) bronchial asthma (?).

If the history and physical manifestations can be depended on, the asthma is but a symptom of the cir-

culatory dysfunction. Microscopic examination, however, reveals some of the appearances described by others as pathognomonic of bronchial asthma.

COMMENT

Cases 11, 13, 15, 26, 28, 7, 8, 10, 15 and 17 represent approximately 21 per cent of our series with necropsies (forty-eight patients). In many of the latter there seemed to be no allergic basis for the asthma; in others it was undeniable and in a few atypical histories it could not be excluded. If an extreme degree of pneumoconiosis was present a long time before the onset of dyspnea, we feel justified in accepting it as the primary cause of symptoms. If there was an adequate basis for "cardiac asthma," this patient may likewise be excluded from the allergic group. Using such criteria,



Fig. 7 (case 11, male, fig. 4).—Section of 1 mm. bronchus $\times 80$. The lumen is completely filled with mucinous exudate. There is much infolding of the wall, and the epithelium rests on a thick hyaline basement membrane. The muscle is definitely hypertrophied, and infiltrating the wall there are numbers of eosinophils as well as other types of leukocytes.

we have attempted to group forty-one patients according to the most obvious cause of dyspnea. In spite of the fact that each of this series of forty-eight patients had been subjected to a more or less complete post-mortem examination, there remained seven histories in which the data were too meager to permit of classification; forty-one patients, therefore, form the basis for determining the percentage factor indicated in table 2. We are convinced that none of the unclassified patients were typically allergic. Other data relating to these patients appear in figure 4.

The circulatory dysfunctions are arranged in sequence, as are the "diseases of the lungs." One may note that thirteen patients (eight males and five females) were afflicted with a "disease of the heart." They represent 31 per cent of the units presented in table 2. Pulmonary pathologic conditions, exclusive

of allergic asthma, account for sixteen additional cases (ten males, six females), or approximately 40 per cent.

Bronchiectasis is occasionally mentioned as a cause of "asthma" and is commonly thought to result from protracted dyspnea, cough and wheezing. When the patient has an especially productive cough, this diagnosis seems to find added support. It is a characteristic of the groups we have discussed that clinically and grossly bronchiectasis, and also lung abscess, was not conspicuous. Incidental pleural scarring was noted in only a few instances.

Many support the theory that the adrenals or other glands of internal secretion must be abnormal in one who has "asthma," but we find no evidence to support this contention. Unless specifically noted in the



Fig. 8 (case 11, male, fig. 4).—Section of 4 mm. bronchus $\times 85$. Note the ulceration and hyperplasia of the epithelial lining, the thick hyaline basement membrane; hypertrophy and mucinous exudate obstructing the lumen.

abstract, the adrenals at necropsy appeared normal and grossly no thymic tissue was found. Examination of other glands was too cursory to permit any conclusion. In general the degree of arteriosclerosis was not excessive and quite frequently was less than that expected for the chronological age.

In 26 per cent only does the diagnosis of allergic asthma seem tenable; here circulatory dysfunction and pulmonary pathologic conditions were of little or no significance. The absence of those conditions is interesting, since we have just shown that they were of primary importance in 71 per cent of this group. Mechanical factors, distortion of the thorax in one and tracheal compression by an aneurysm in another, account for nearly 5 per cent of the series of forty-one individuals. If one again refers to figure 4, one may be better able to visualize the place, in each male and female group, occupied by those individuals representing 26 per cent of the series. An asterisk appears above the bar representing such patients. It must be again emphasized that we do not accept these as typical

examples of allergic asthma; one or more features make it impossible to exclude that diagnosis. On the same basis the possible examples of allergic asthma, in the group previously published, have been similarly designated.

Attention has been directed to the approximate identity of our two series, those with and those without necropsies, to the group already published. In our group without postmortem examination we find nine male and seven female patients in whom it was impossible to exclude asthma. Here again are instances in which the data were too few to permit of differential diagnosis. It is our contention, therefore, that the trends brought out in table 2 are common to the other subdivisions of the total of 187 patients.

Our emphasis on careful differential diagnosis of "asthma" may seem too academic. This attitude would not, we believe, be shared by the victim of allergic asthma who has been refused insurance or who has been "rated up," in spite of normal physical examinations, because of the supposed excessive risk.

Some may contend that there is no excuse for making a diagnosis of "bronchial asthma" on some of these patients. With this we agree, but the fact remains that they were so diagnosed, not once but usually many times and by different visiting internists. The clinical study, with numerous consultations and roentgenologic, laboratory and other examinations, was more extensive than ordinarily given a private patient. The clinical picture during life and the pathologic examination subsequently formed the basis for innumerable discussions. Our decisions are often at variance with the intern or resident who signed the death certificate. We are willing to concede that the clinical¹⁶ as well as the pathologic criteria are not too well established.

It is frequently stated that one or more signs or symptoms, or the response to a drug, are pathognomonic of allergic asthma. A few of the inconsistencies should convince one that this belief is without basis. Epinephrine may occasionally afford more relief in a cardiac patient than in another with typical allergic asthma. Caffeine, a drug more or less specific for the former, may at times be more effective than epinephrine, and possibly even in a child with allergic asthma. Expiratory dyspnea, frequently emphasized in the allergic type, may at times be more conspicuous in miners' asthma or in cardiac dyspnea. Others hold that fine moist râles are almost pathognomonic of the latter, yet they occur in allergic asthma. Edema of the lower extremity may be entirely postural owing to the patient sitting in a chair day and night for many hours. This may be misinterpreted as circulatory failure.

In spite of an apparently confused situation, there are certain rather definite indexes of allergic asthma. The borderline case will be difficult if not impossible to classify. Since the term asthma tends to convey the idea of a disease entity, we urge that it be discarded or limited to one type. We have quoted several who emphasize the identity of the "bronchial spasm" in all types and who urge the use of the term paroxysmal dyspnea. This could be qualified to indicate an etiologic or other factor. Paroxysmal dyspnea on an allergic basis frequently begins in early life and may be preceded by, or later associated with, one or more allergic conditions—notably allergic vasomotor rhinitis (pollinosis and the like) or eczema. A specific excitant (allergen) may be evident from the history or be deter-

16. One of us (L.) assumes full responsibility for any errors in the evaluation of this factor.

mined by subsequent skin tests. Of some value is the evidence that treatment with the suspected allergen affords relief from, or protection against, symptoms. The evidence is more positive if avoiding contact with the excitant markedly reduces the severity of the asthma. Normal clinical courses interposed between

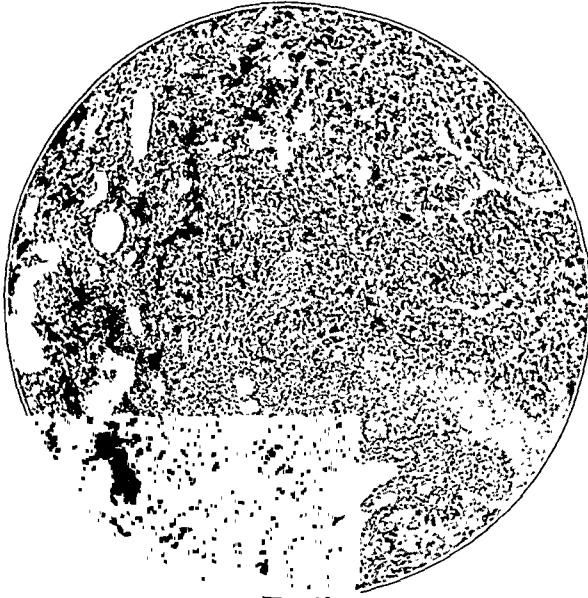


Fig. 9 (case 13, male, fig. 4).—Section of 3 mm. bronchus $\times 50$, presenting a marked degree of chronic bronchitis.

periods of attacks characterize the condition, at least for many years after onset. The frequency with which one obtains a history of long duration of symptoms is well recognized. This does not entirely exclude the possibility of a fatal outcome after a short duration. A normal or low systolic blood pressure is commonly found even in the older age groups and in spite of years of paroxysmal dyspnea.

A history of this or other allergic conditions in one or more members of the maternal or paternal side or both sides of the family may be of great value; it seems to be present in from 40 to 75 per cent. This wide variation in percentages is probably due to the different standards of what constitutes a positive tendency in the family. With the points we have emphasized, it seems relatively easy to classify, during life, the majority of such patients on the basis of etiology. We have shown that a failure to do this will give one an erroneous idea of the frequency of "diseases of the heart" and "diseases of the lungs." In view of the fact that many of our patients contributed to insurance statistics concerning mortality in "asthma" and that errors in diagnosis of this condition are frequently made by others than our hospital staff, we question the implication that allergic asthma predisposes to "diseases of the heart" or "of the lungs." In substitution for that contention it may be suggested that, as a result of such diseases, wheezing, paroxysmal dyspnea and cough may be conspicuous.

The frequent similarity in the clinical picture, especially in bronchial spasm, in the response to drugs and possibly even in the gross and microscopic postmortem appearances may lead to two opposite points of view. One is that the type of "asthma" is identical in all and that our clinical differentiations are based on incidental observations. One may contend that the only tuberculous (or pneumoconiotic) patient who develops

"asthma," secondary to fibrotic changes in the lung, is one inheriting a tendency to paroxysmal dyspnea. The concept to which we subscribe is that paroxysmal dyspnea, like fever, is a response which may be provoked in most persons, and that the mechanisms behind this are as distinct as are the causes of fever. The absence of a positive family history for allergy in those we believed had allergic asthma is probably due to the patient's incomplete knowledge concerning his family. Skin sensitivity to an allergen may be found in true cardiac dyspnea and bear no relationship to that condition. Further study of pulmonary abnormalities is being carried out in an effort to contribute additional evidence to the solution of these complicated problems.

The earlier literature contains two reports of fatalities from "asthma" in infants and children, and we have collected three in our study. Since our charts were completed, Waldbott¹⁷ has reported two additional cases. He believes that these two cases, more clearly than any other cases on record, represent "asthma" in its most original state. The duration of the dyspnea was three weeks in one patient and six weeks in the other. He somewhat reverses the usual concept of the "thymic death" and wonders whether this condition may be the equivalent of death from asthma in infants. The duration of symptoms in the two previously published was three months and fifteen months respectively. In our series of three patients the duration was one day, one month and five days respectively. Final conclusions are not tenable because of the incomplete data, but we are inclined to believe that the dyspnea and wheezing, especially in the first and third patients, were but symptoms of some primary pathologic con-



Fig. 13 (case 28, male, fig. 4).—Section of 20 mm. bronchus, slightly reduced from a photomicrograph with a magnification of 40 diameters. Note desquamation of epithelium, thin hyaline membrane, apparent hypertrophy of muscle, prominent and numerous glands lined by goblet cells and the leukocytic infiltration containing a few eosinophils, in the wall of the bronchus.

dition of the cardiorespiratory systems. We present these as further evidence that the term "asthma" is misapplied.

CONCLUSIONS

1. The diagnosis of "asthma" is being applied to such unrelated conditions as cardiac dyspnea, mechanical

17. Waldbott, G. L.: Pathologic Changes in Asthmatic Infants, *Am. J. Dis. Child.* 49: 1531 (June) 1955.

obstruction of the trachea, pneumoconiosis and allergic or atopic asthma. Paroxysmal dyspnea better describes the condition and does not commit one to any particular etiology.

2. Concepts based on insurance statistics emphasize the undue predominance of diseases of the heart and lungs in asthma; our studies indicate that such conclusions are due to an inability to correct the crude data. It is therefore incumbent on every physician to use more caution when employing this term.

3. An analysis of the data concerning fifty published case reports with necropsies and our unpublished series of forty-eight cases with and eighty-nine without necropsies show a striking parallelism in the significant features. We construe this to indicate a similarity, if not identity, of the three groups.

4. The hazards of this syndrome (asthma) are more reflected in the statistics for female patients; this agrees with insurance compilations.



Fig. 18 (case 17, female, fig. 4).—Section of 7 mm. bronchus $\times 40$. There are remnants of epithelium overlying a thick hyaline basement membrane. The muscle is moderately hypertrophied. Glands are numerous and prominent. Only a few eosinophils infiltrate the wall.

5. Approximately 40 per cent may survive not more than four years of symptoms. This finding is at variance with accepted clinical concepts regarding true bronchial asthma. An analysis of our unpublished cases with necropsies indicates that not more than 26 per cent actually belong in the latter group and that diseases of the heart or of the lungs are not the result of bronchial asthma.

6. No single clinical criterion seems sufficient to separate the pseudobronchial from the true bronchial asthma, although significant points in differential diagnosis are emphasized.

7. The pathologic appearance in those apparently afflicted with allergic asthma agrees for the most part with that recently emphasized by Macdonald, Michael and Rowe, and others. It is indicated, however, that further study of pathologic changes of the lungs is essential for the establishment of histologic changes pathognomonic of bronchial asthma.

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TUBERCULOUS TRACHEOBRONCHITIS

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Since patients whose pulmonary tuberculosis is complicated by tuberculous tracheobronchitis have a relatively grave prognosis, the clinical recognition of this complication should be of concern to all phthisiotherapists. In this communication the term "tuberculous tracheobronchitis" denotes a specific infection of the mucosa or submucosa of the trachea and bronchi and is to be distinguished from "tracheobronchial tuberculosis," which signifies clinical tuberculosis of the tracheobronchial lymph nodes.

The pathology of tuberculous tracheobronchitis was accurately described by Carswell¹ and by Louis² nearly a hundred years ago, but contributions to the clinical literature have been few and relatively recent. These have dealt chiefly with patients presenting obstructive respiratory symptoms of varying severity (Schonwald,³ Andrews,⁴ Vinson and Habein,⁵ Ballon,⁶ and others). No textbook on pulmonary tuberculosis has emphasized the frequency or importance of this complication, although Eloesser⁷ called attention to the stenotic forms in 1930 and 1934. During the past six years, increasing clinical experience has enabled us to recognize tuberculous tracheobronchitis more readily and continued observation has given us some knowledge of the course of the disease.

PATHOLOGY

In a necropsy series of 122 cases⁸ (table 1), the predominant mode of mucosal infection appeared to be direct contact with tubercle bacilli from pulmonary cavities. Microscopically the primary tracheobronchial lesions were either minute ulcers in the mucosa or small tubercles presumably resulting from the deposition of tubercle bacilli in the crypts of mucous glands. With progression of the lesions there were submucosal infiltrations with overlying intact mucosa showing edema and congestion or varying degrees of mucosal ulceration. The lesions were characteristically on the posterolateral walls of the bronchi and trachea, further suggesting implantation infection. Occasionally a direct massive extension from a pulmonary cavity to the peribronchial tissues was observed, with subsequent involvement of the mucosa. In the trachea there was no evidence of the mechanism of lymphatic permeation as described by Reichle and Frost⁹ in their cases of tuberculous bron-

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From the Department of Surgery, the Tuberculosis Unit of the Department of Internal Medicine and the Department of Pathology, respectively, of the University of Michigan Medical School.

1. Carswell, Robert: *Pathological Anatomy: Illustrations of the Elementary Forms of Disease*, London, Longman, 1838.

2. Louis, P. C. A.: *Researches on Phthisis*, translated by W. H. Walche, London, Sydenham Society, 1844.

3. Schonwald, P.: *Tuberculous Granuloma of the Bronchus*, *Am. Rev. Tuberc.* 18: 425-429 (Oct.) 1928.

4. Andrews, C. H.: *Bronchial Stenosis in Pulmonary Tuberculosis*, *Canad. M. A. J.* 33: 36-41 (July) 1935.

5. Vinson, P. P., and Habein, H. C.: *Tuberculoma of the Trachea*, *Surg., Gynec. & Obst.* 46: 562-563 (April) 1928.

6. Ballon, D. H.: *Bronchoscopy in the Diagnosis of Asthma Complicating Pulmonary Tuberculosis*, *J. Thoracic Surg.* 5: 193-197 (Oct.) 1935.

7. Eloesser, Leo: *Bronchial Stenosis*, *J. Thoracic Surg.* 1: 124-131 (Dec.) 1931, 270-295 (Feb.), 373-396 (April), 485-501 (June) 1932.

8. Bugher, John, Littig, John, and Culp, J.: *Tuberculous Tracheobronchitis: Its Pathogenesis*, *Am. J. M. Sc.* 193: 515-525 (April) 1937.

9. Reichle, H. S., and Frost, T. T.: *Tuberculosis of the Stomach and Bronchi*, *Am. J. Path.* 10: 651-656 (Sept.) 1934.

chitis. As far as the bronchi were concerned, only about one third of the cases showed evidence that was consistent with a mucosal involvement secondary to tuberculous infection of the peribronchial lymphatics.

There is both pathologic and clinical evidence against the alleged development of tuberculous tracheobronchitis secondary to laryngeal tuberculosis as suggested by Lederer.¹⁰ Out of forty-nine patients in whom a bronchoscopic diagnosis of tracheobronchial disease was made, nearly one half showed no evidence of active laryngeal tuberculosis. In the necropsy series, twenty-two cases showed tracheal or bronchial lesions without laryngeal lesions. Whether or not the larynx showed tuberculosis, there were more instances (twenty-five cases) of bronchial involvement with the trachea free than in the reverse situation (nine cases). This is another indication of the tendency of the infection to come from below.

Statistically considered, the separate percentages of involvement in the larynx, trachea and bronchi are typically those found when three similar events without causal interrelationships arise from a common source; i. e., involvement of all three areas secondary to active pulmonary tuberculosis (figs. 1 and 2).

SYMPTOMATOLOGY

The symptomatology of tuberculous tracheobronchitis is varied, but the persistence of several of the following signs and symptoms may be made the basis for a presumptive clinical diagnosis.¹¹ The clinical syndrome can be conveniently divided into three groups.

The first of these is concerned with the signs and symptoms exhibited by the patient. 1. Persistent inspiratory or expiratory wheezing and rattling, present even after the patient has evacuated all the sputum he can. The wheezing is usually noted by the patient and may be heard by others. It can be elicited by quiet



Fig. 1.—Extensive mucosal tuberculosis of bronchus involving mucous glands and ducts; marked thickening of wall with stenosis of lumen; X 8.

respiration and may be heard by direct auscultation or by placing the stethoscope near the corner of the mouth. This symptom is the one most frequently encountered. 2. Attacks of asthmatoïd breathing with prolongation of one or both respiratory phases. Subjectively the

patient experiences difficulty in getting air "in" and "out," and he may have a sense of substernal constriction. These patients frequently are wrongly diagnosed as having asthma or "asthmatic bronchitis." 3. Persistent parasternal rhonchi, especially in the presence of stenotic lesions.¹² They are best elicited by forced expiration. They may be heard diffusely over the entire



Fig. 2.—Early tuberculous ulceration of mucosa of posterior wall of trachea, superficial type; X 16.

chest but, when localized, the site of the lesion in the tracheobronchial tree may be predicted with reasonable accuracy. 4. Intermittent unexpected elevations of temperature. Sputum retained by an obstructive lesion is often responsible. 5. Paroxysms of violent coughing and choking with unusual difficulty in raising sputum. 6. Dyspnea and intermittent cyanosis on very slight exertion in spite of a vital capacity ordinarily to be considered adequate (1,200 cc. or more). 7. The

TABLE 1.—Distribution of Laryngotracheobronchial Lesions According to Microscopic Examination in All Patients Dying with Pulmonary Tuberculosis*

Necropsy Cases	Lesions in Any Portion of Air Way	Laryngeal Lesions Only	Tracheal and/or Bronchial Lesions Only	Laryngeal with Tracheal and/or Bronchial Lesions	
Total.....	122	59 (48.4%)	9 (7.4%)	22 (18.1%)	23 (22.9%)
Nonmiliary.....	95	53 (55.8%)	8 (8.5%)	18 (18.9%)	27 (28.4%)
Miliary.....	27	6 (22.2%)	1 (3.7%)	4 (14.8%)	1 (3.7%)

* Patients coming to necropsy at the University of Michigan Hospital from 1925 to 1935. The greater frequency of tuberculous mucosal lesions in patients with nonmiliary tuberculosis is well known.

gradual or sudden development of severe obstructive respiratory symptoms with accentuation of wheezing and asthmatoïd breathing. Depending on the location and completeness of the obstruction there are usually secondary signs of lobar or massive atelectasis, as manifested by decreased or absent breath sounds, dullness, mediastinal shift, elevated diaphragm and localized pleuritic pain.

The second group of signs is concerned with characteristics of the sputum which differ from those expected in uncomplicated pulmonary tuberculosis. 1. Excessively large amounts of sputum for the degree of pulmonary tuberculosis visualized roentgenographi-

10. Lederer, F. L.: Tuberculosis of the Ear, Nose, Accessory Sinuses, Pharynx and Larynx, in Goldberg, B.: Clinical Tuberculosis, Philadelphia, F. A. Davis Company, 1935, vol. 2, chapter 37.
11. Barnwell, John; Littig, John, and Culp, J.: Ulcerative Tuberculous Tracheobronchitis, Am. Rev. Tuberc., to be published.

12. McConkey, M., and Greenberg, S.: Persistent Rhonchi in the Diagnosis of Bronchial Stenosis Complicating Pulmonary Tuberculosis, Tr. Am. Clin. & Climat. A. 50: 218-223, 1934.

cally. 2. Exceptionally tenacious, mucoid, "sticky" and "rubbery" sputum. The purulent content is not necessarily high. Frequently the sputum will cling to the bottom of the sputum cup when it is inverted. The patient often experiences difficulty in evacuating this type of sputum. 3. Sputum persistently containing tubercle bacilli in spite of apparent quiescence of the parenchymal pulmonary lesion. 4. Marked variation in the amount of sputum from day to day.

The third group of signs is concerned with the roentgenographic evidences of tuberculous tracheobronchitis. 1. The appearance of intermittent areas of atelectasis in serial roentgenograms of the chest (fig. 3). 2. Sudden lobar collapse following a paralysis of the hemidiaphragm or the induction of pneumothorax is considered highly significant. 3. The visualization of tracheal or bronchial narrowing, particularly in studies made with the Potter-Bucky diaphragm (fig. 4). 4. The occasional demonstration of bronchial stenoses beyond the limits of bronchoscopic vision by brominol bronchograms (fig. 5). This method of examination

scribed submucosal infiltration and thickening and often by submucosal tubercle formation. The overlying mucosa shows edema, chronic congestion and granularity. 2. Hyperplastic, characterized by submucosal proliferation and tuberculoma formation. This process is the same as in 1 but is greater in degree. The inflammatory tissue formation is frequently sufficient to obstruct, partially, the lumen of the trachea or bronchus. 3. Ulcerative, with diffuse or circumscribed loss of mucosa. The ulcers occasionally extend to the cartilage rings. Some patients with predominantly hyperplastic disease show redundant and exfoliative pure tuberculous, or tuberculous and pyogenic, granulation tissue. While ulceration may not be visualized bronchoscopically, the presence of this type of tissue always indicates the loss of mucosal continuity. 4. Fibrostenotic, the frequent result of the fibrotic healing of ulcerative lesions. The stenosis may be localized to one portion of the trachea or bronchus; more often an irregular scar tissue tunnel is found, one or more centimeters in length. In many patients, stenoses are accompanied by

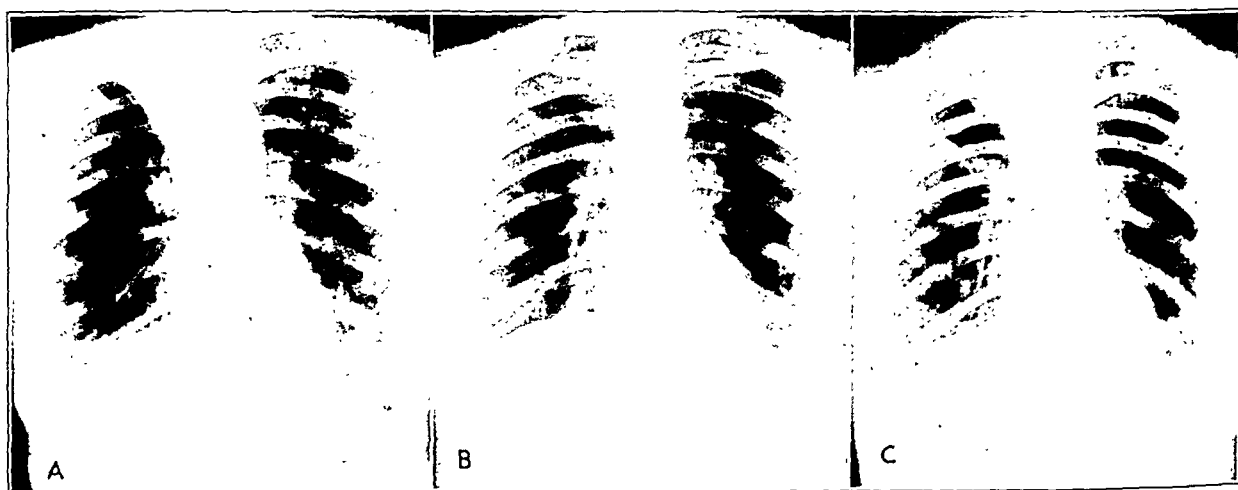


Fig. 3.—Symptomless intermittent atelectasis of the right upper lobe in a patient with tuberculous ulceration of the right stem bronchus. The atelectasis appeared and disappeared four times in nineteen months. A, admission, Nov. 6, 1928; B, Jan. 21, 1929; C, Nov. 5, 1929.

has occasionally been useful when the bronchoscopic examination was negative in the face of strong presumptive clinical evidence of tuberculous tracheobronchitis.

BRONCHOSCOPY

Bronchoscopy is now considered not to be contraindicated in active pulmonary tuberculosis.¹³ At the University of Michigan Hospital, bronchoscopy is employed to confirm the suspected presence of tuberculous tracheobronchitis. Subsequent bronchoscopies may be performed to determine the progression or regression of the mucosal lesions, thus serving as a guide to the treatment of both the tracheobronchial and the pulmonary parenchymal tuberculosis.¹⁴ Diagnostic bronchoscopy is specifically contraindicated by recent hemoptysis, by severe tuberculous laryngeal ulceration and by hopelessly advanced parenchymal tuberculosis.

Bronchoscopically, the following four types of tracheobronchial lesions are recognized, although any patient may show a combination of lesions: 1. Non-ulcerative and nonstenotic, characterized by circum-

residual mucosal ulceration with or without granulation tissue. Occasionally enlarged tracheobronchial lymph nodes by pressure cause narrowing of the trachea or bronchus in the absence of cicatricial scar tissue formation. This, however, is rare in adults and was found bronchoscopically in but two cases in our series. The bronchoscopic picture of a semilunar indentation near the carina and frequently on the posterior tracheal or medial bronchial wall suggests an enlargement of the lymph nodes.

Tuberculous mucosal lesions, whether ulcerative or nonulcerative, are usually found in the upper portions of the stem bronchi on the posterior or posterolateral walls. There is frequent involvement of the orifices of the upper and middle lobar bronchi. Lesions involving the whole circumference of the bronchi are common and, when ulcerative, frequently result in stenosis if healing occurs. Tracheal lesions are found typically in the lower one third on the posterior and posterolateral walls, although ulcers have occasionally been described anteriorly. In the trachea, also, circumferential lesions are common. When the bronchial lesions are unilateral the disease is almost always present on the same side as the more advanced pulmonary parenchymal tuberculosis. It is noteworthy that when the one stem bronchus and the trachea are affected the tracheal

13. Clerf, L. H.: Is Bronchoscopy Indicated in Tuberculosis? *J. A. M. A.* 97: 87-90 (July 11) 1931. Tucker, Gabriel: *Bronchoscopy in Pulmonary Disease: Present Status as an Aid in Diagnosis and Treatment*, *Ann. Int. Med.* 8: 444-458 (Oct.) 1934. Myerson, M. C.: *Bronchoscopy in Tuberculosis*, *Ann. Otol., Rhin. & Laryng.* 43: 1139-1146 (Dec.) 1934.

14. Samson, P. C.: *Tuberculous Tracheobronchitis: The Role of Bronchoscopy*, *Ann. Rev. Tuberc.* 34: 671-699 (Nov.) 1936.

involvement is usually on the posterior and posterolateral quadrant corresponding to the diseased bronchus. Tuberculous lesions are rarely strictly localized but tend to involve several centimeters of the air passages. The change from normal to abnormal mucosa is usually abrupt. A diffuse inflammatory change of the entire tracheobronchial tree is against the lesions' being tuberculous.

The bronchoscopic differential diagnosis lies between nonspecific inflammations and ulcers, erosion of lymphatic glands, syphilis, neoplasm, rhinoscleroma, asthma

and the miscellaneous group of extrabronchial conditions causing obstruction by pressure from without. The latter group includes aneurysm, dermoid tumor, substernal goiter and neoplasms of the vertebral column, esophagus and sternum.¹⁵

The question of biopsy in suspected tuberculous tracheobronchitis is pertinent. In this clinic a biopsy is not made if the lesion is believed to be tuberculous. In our experience an increase in the parenchymal dis-



Fig. 4.—Tracheal narrowing visualized roentgenographically by means of the Potter-Bucky diaphragm, Aug. 22, 1935. The trachea has been shaded. Bronchoscopically there were ulceration of the tracheal mucosa and fibrostenosis.

ease of several patients has been observed following biopsy, probably from hemorrhage, further inflammatory swelling causing obstruction or the aspiration of particulate matter. Furthermore a biopsy of relatively normal mucosa tends to establish an active tuberculous focus owing to the abrupt breaking of the natural defense mechanisms of the body. If the weight of clinical and bronchoscopic evidence is in favor of nonspecific inflammation, syphilis, neoplasm or rhinoscleroma, a biopsy should be made.

PROGNOSIS AND COLLAPSE THERAPY

From the point of view of prognosis, patients with tuberculous tracheobronchitis may be divided into two groups, based on the type of lesion visualized bronchoscopically: 1. The ulcerative and stenotic group. Ulceration is believed to be a late, active manifestation of tuberculous tracheobronchitis and probably indicates grave disease. Patients with stenotic lesions are also included in this prognostic grouping because they often have persistence of respiratory symptoms and occasional exacerbations of parenchymal tuberculosis because of insufficient evacuation of sputum. They commonly have severe reactions following operation. The development of obstructive emphysema or atelectasis and bronchiectasis beyond the stenosis is not uncommon (fig. 6). In one patient death was due directly to the stenosis, which was proved by repeated bronchoscopic examinations to be the result of healing of a diffuse ulcerative lesion. 2. The nonulcerative and nonstenotic group. These lesions are believed to be

relatively less active and perhaps earlier than the lesions in the first group. The hyperplastic cases in which there is no gross ulceration of the mucosa and in which the tissue proliferation is not sufficient to cause marked diminution in the size of the lumen are included.

This study is based on fifty-five patients with a clinical diagnosis of tuberculous tracheobronchitis. In this group six were not examined by bronchoscopy; in two of the six the clinical diagnosis was later verified at necropsy. Twenty-four patients have been followed for one or more years or until death; of these patients, seventeen had ulcerative and stenotic lesions (group 1) and seven had nonulcerative and nonstenotic lesions (group 2). In the first group nine (52.9 per cent) are dead and none have yet returned to complete health. The poor prognosis of patients with ulcerative and stenotic disease is shown in table 2. The majority have been referred from the Michigan State Sanatorium.

A further analysis of the nine deaths shows that five patients died with typical obstructive respiratory symptoms due to the tracheobronchial lesions. In the remaining four the complication of ulcerative tuberculous tracheobronchitis appeared to be a grave manifestation of the patients' poor resistance to tuberculosis. In group 1, sixteen of the seventeen patients eventually received some form of collapse therapy for their parenchymal pulmonary tuberculosis (phrenic nerve paralysis, pneumothorax, multiple intercostal neurectomy, extrapleural pneumonolysis with paraffin filling, thoracoplasty or a combination of these measures). In approximately one half of these patients, symptoms of tracheobronchial disease first appeared following the inception of collapse therapy measures, occasionally even after the parenchymal disease was quiescent. In

the others, however, this complication was diagnosed before any treatment was begun. Collapse therapy is most probably not a responsible etiologic agent. Formerly it was customary to treat the pulmonary disease by whatever collapse therapy operation seemed indicated, without regard to the known presence of ulcerative or stenotic tracheobronchitis. Many of these patients had extreme difficulty in raising sputum postoperatively, the symptoms of respiratory embarrasment



Fig. 5.—Bronchogram showing a stenosis of the left upper lobe bronchus which could not be seen bronchoscopically because the lesion was "around the corner" (Oct. 27, 1935). The patient had choking attacks, with great difficulty in raising sputum, and intermittent dyspnea and cyanosis. The vital capacity was 1,700 cc.

were aggravated and approximately one half eventually died. In general, equally poor results were obtained whether the patient was treated by bed rest alone or by collapse therapy, and whether the designated treatment was instituted before or after the appearance of symptoms of tracheobronchial disease.

Because of the obviously poor prognosis we do not now recommend any type of collapse therapy for

15. Furstenberg, A. C.: Personal communication to the authors, Aug. 25, 1935.

patients with ulcerative tracheobronchial lesions unless subsequent bronchoscopic examinations demonstrate a tendency for the ulcers to heal without the formation of an important stenosis. Major collapse measures are of no benefit to ulcerative and stenotic tuberculous tracheobronchitis. The control of the parenchymal lesion is insufficient, since ulcerative disease, when once established, is frequently self propagating.

The symptoms in nonulcerative and nonstenotic tuberculous tracheobronchitis (group 2) are not striking and the clinical and bronchoscopic recognition of this

factors of specific tissue resistance and susceptibility to tuberculosis as far as they concern the tracheobronchial mucosa.

TREATMENT

The varied types of therapy employed in this and other clinics are indicative of the poor results obtained in the treatment of patients with tuberculous tracheobronchitis. When we first began to recognize these cases their similarity to asthma and other allergic states led to the symptomatic use of atropine, epinephrine, ammonium chloride, autogenous sputum vaccines and protein sensitization therapy. None of these measures were more than temporarily effective in relieving symptoms. The temporarily favorable effect of epinephrine was probably due to a decrease in obstruction through a lessening of the vascular congestion in the lesions. Other methods of general treatment have been attempted. A change to a high, dry and warm climate or to a cold climate has not proved successful in relieving symptoms. Ultraviolet rays and tuberculin therapy have been employed without beneficial effect.

In selected cases bronchoscopy has given striking symptomatic relief. Patients with nonulcerative and hyperplastic disease occasionally have difficulty in raising sputum because the diameter of the tracheobronchial lumen is decreased by mucosal edema and congestion. When this condition is encountered bronchoscopically, careful chemical shrinkage of the edematous mucosa (equal parts of 10 per cent cocaine hydrochloride and 1:1,000 epinephrine hydrochloride) often produces excellent results. Patients who have severe respiratory distress may be temporarily relieved by the bronchoscopic aspiration of obstructing tenacious secretions, mucous plugs or crusts. This procedure may be an immediate life-saving measure but usually is only palliative. Tracheotomy has been necessary three times because of postbronchoscopic laryngeal edema. Repeated low bronchoscopic and catheter aspirations were facilitated, but tuberculous wound infections and inability to raise sputum efficiently were serious post-operative complications, and all three patients eventually died.

The treatment of cicatricial stenoses must be individualized. Localized stenoses of the stem bronchi may be carefully dilated by repeated bronchoscopic bougi-

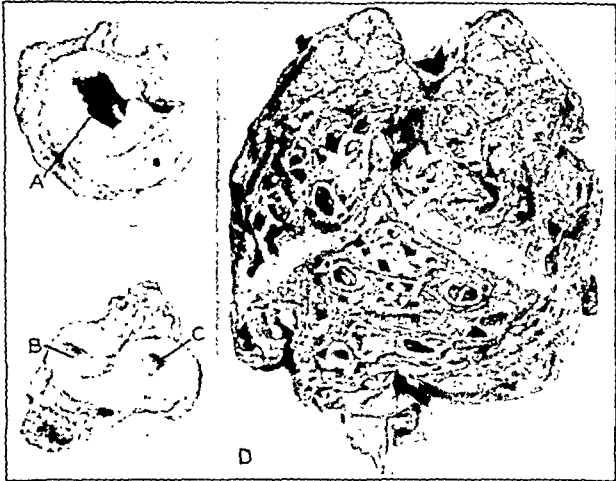


Fig. 6.—The development of diffuse tuberculous bronchiectasis in a patient with chronic ulcerative and stenotic tuberculous tracheobronchitis. A, cross-section of trachea just above the carina, showing thickened sclerotic wall. B, cross-section of right stem bronchus, showing thickening of its wall. C, cross-section of left stem bronchus, showing marked obstructive fibrosis. D, longitudinal section of left lung, which had been subtotally collapsed by induced pneumothorax for two years prior to death. At necropsy each bronchiectatic cavity contained an occluding, extremely tenacious, mucous and fibrin cast.

type of lesion has been relatively recent at this clinic. After observing several of these patients over a considerable period we came to believe that this type of the disease was relatively less active and virulent than was the ulcerative type. Consequently collapse therapy has been instituted as indicated for the parenchymal tuberculosis. In this group of seven patients, none are dead and four have closed cavities and negative sputum fol-

TABLE 2.—Comparison of Death Rates in Patients With and Without Ulcerative and Stenotic Tuberculous Tracheobronchitis

Pulmonary Lesion at Admission (National Tuberculosis Association Classification)	Minimal	Deaths	Moderately Advanced	Deaths	Far Advanced	Deaths	Totals	Deaths
Michigan State Sanatorium patients who had no tuberculous tracheobronchial lesions*	104	0 (0%)	263	6 = 1.6%	645	134 = 20.8%	1,112	140 = 12.6%
Patients with ulcerative and stenotic tracheobronchial lesions (group 1).....	0	0 (0%)	8†	3 = 37.5%	9	6 = 66.7%	17	9 = 52.9%
Patients with nonulcerative tracheobronchial lesions (group 2).....	0	0 (0%)	3	0 (0%)	4	0 (0%)	7	0 (0%)

* G. L. Leslie and R. S. Anderson's (personal communication to the authors, Oct. 25, 1935) statistics for resident and discharged patients over a recent four and one-half year period. All patients with known tuberculous tracheobronchitis have been excluded from these figures.
† One patient in this group had no roentgen evidence of parenchymal disease when the diagnosis of tuberculous tracheobronchitis was first made; one patient had had minimal pulmonary tuberculosis when first seen and she subsequently died. At the time they entered a sanatorium, however, both had moderately advanced pulmonary tuberculosis.

lowing thoracoplasty. Three are unimproved and have intermittently positive sputum: In two of them phrenic nerve interruption was used, and in the other pneumothorax. It is impossible, however, to predict whether nonulcerative tracheobronchial lesions will remain quiescent following control of the parenchymal tuberculosis. We feel that some such lesions will inevitably progress to ulceration and, perhaps, to stenosis. At the present time, careful clinical and bronchoscopic reexaminations can be our only guides, and until further data are available we cannot evaluate the intangible

nage if no active mucosal disease is demonstrable. Patients frequently lose all symptoms of wheezing and difficulty in raising sputum after a series of successful dilations. In the presence of extensive mucosal inflammation or ulceration, mechanical dilation or even the trauma of passage of the bronchoscope past the lesions is likely to be harmful. On four occasions nearly complete obstruction has resulted from an acute exacerbation of edema and congestion in already inflamed tissues. Tracheal stenoses are more serious than bronchial stenoses and in our experience any attempt at local treat-

ment has led to uniformly bad results. Dilation or the forced passage of a small bronchoscope should not be attempted unless there is impending suffocation.

If a small, sharply circumscribed tuberculous ulcer should be discovered, consideration might be given to its treatment by electrocauterization with the high frequency current, as similar lesions in the larynx are often treated.¹⁶ Since such a strictly circumscribed lesion seldom occurs, this therapeutic consideration is based on theoretical grounds alone.^{16a}

Roentgen therapy in divided doses was proposed by Jacox¹⁷ as a possible means of treating active tuberculous mucosal lesions on the basis that early induction of fibrosis might aid in healing, similar to the reported action of irradiation in tuberculous lymphadenitis.

The x-ray beam is directed through two ports, from 10 to 12 cm. square, centered over the lesions as localized bronchoscopically. One port is on the anterior and one on the posterior surface of the chest. The ports are treated alternately at weekly intervals, and the irradiation is continued until a definite erythema develops. This usually occurs after from six to eight treatments have been given. The physical factors are as follows: filtration, 0.25 mm. of copper and 1 mm. of aluminum; voltage, 150 kilovolts (Villard circuit); tube current, 25 milliamperes; skin target distance, 50 cm.; intensity of irradiation, from 34 to 39 roentgens per minute, measured in air without backscatter; dosage per treatment field, from 200 to 300 roentgens.

Since the treatment is experimental to a large extent, a critical evaluation of results is not justified. Eight patients have had their series of treatments completed for three months or longer. In five of the eight who had chronic hyperplastic and ulcerative lesions, bronchoscopic reexamination showed that the active lesions had regressed, although two patients with preexisting fibrostenosis have had evidence of increased scar tissue obstruction. The remaining three of the eight patients were not benefited by irradiation. One of these has shown bronchoscopically a progression of the hyperplastic disease and the recent formation of ulcers. The second had acute, extremely active hyperplastic and ulcerative disease of the lower trachea and left stem bronchus. Obstruction and sudden atelectasis of the left lower lobe followed the fifth treatment, presumably from reactionary edema and congestion of the actively diseased mucosa. The third had tracheal ulceration and moderate fibrostenosis (fig. 4). There was temporary complete relief from symptoms for two months following irradiation, but the severe dyspnea, choking attacks and asthmatic breathing have recently returned.

SUMMARY

1. A positive diagnosis of tuberculous tracheobronchitis has been made in fifty-five patients, twenty-four of these having been observed for a year or longer. On the basis of the type of lesions seen, the patients have been divided into two clinical groups which are of prognostic significance: group 1, ulcerative and stenotic, seventeen patients; group 2, nonulcerative and nonstenotic, seven patients.

2. Of the seventeen group 1 patients, none have yet returned to complete health and nine (52.9 per cent) are dead. Major collapse therapy for parenchymal pul-

monary tuberculosis has had no favorable effect on the ulcerative tracheobronchial lesions of this group.

3. Nonulcerative and nonstenotic tuberculous tracheobronchitis is considered relatively less active than ulcerative disease. For this reason collapse therapy has been recommended as indicated for the parenchymal tuberculosis. Four of the seven patients have had thoracoplasty and now have closed cavities and negative sputum. The other three have intermittently positive sputum and the relationship of this to tracheobronchial disease is not clear. Temporary paralysis of the hemidiaphragm was used in two and pneumothorax in one.

4. In selected cases symptomatic improvement has followed the bronchoscopic aspiration of retained secretions, chemical shrinkage of the edematous mucosa or the careful dilation of circumscribed bronchial stenoses.

5. Of twelve patients who have had a series of roentgen treatments, eight have been followed for three months or longer. The majority of those whose lesions were chronic, hyperplastic and granulo-ulcerative showed a regression of the disease when reexamined bronchoscopically.

6. Because of the poor results obtained in the past, we are not now recommending any type of major collapse therapy for parenchymal tuberculosis in the presence of ulcerative tuberculous tracheobronchitis unless, after bronchoscopic reexamination, it is apparent that the ulcerative lesions are healing without the formation of highly obstructive fibrosis.

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THE USE OF SULFANILAMIDE IN GONOCOCCIC INFECTIONS

PRELIMINARY REPORT

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During the past two years, numerous reports have appeared in the European literature regarding the action of para-aminobenzenesulfonamide (sulfanilamide) and its related compounds marketed under the proprietary names of Prontosil,¹ Prontylin and many other names, on both experimental and clinical infections with beta-hemolytic streptococci. Mice are protected or their survival periods significantly lengthened against many lethal doses of this organism by the administration of these drugs. The results of their use in clinical infections have been most striking. Colebrook^{1a} has reported a series of thirty-six cases of puerperal infection with hemolytic streptococci, treated with prontosil. From this he concluded that the drug caused a definitely beneficial effect, as evidenced by a prompt improvement in symptoms, a drop in temperature and a reduction in the death rate from between 18 and 28.8 per cent to 8 per cent in his series.

The first American report was recently made by Long and Bliss,² in which their carefully controlled experimental and clinical studies corroborate and amplify many of the previous experiences. They point

From the Brady Urological Institute and the Johns Hopkins Hospital. Dr. Perrin H. Long assisted with advice and criticism in carrying out this investigation.

Owing to lack of space, reports of illustrative cases have been omitted. The complete article appears in the authors' reprints.

1. The name Prontosil has been used for several related substances that are not identical.

1a. Colebrook, Leonard, and Kenny, *Méave*: *Lancet* 1:1297 (June 6) 1936.

2. Long, P. H., and Bliss, Eleanor, A.: *Para-Amino-Benzene-Sulfonamide and Its Derivatives*, J. A. M. A. 108:32 (Jan. 2) 1937.

16. Terry, G. H. B.: *Electrosurgery in Laryngeal and Pharyngeal Tuberculosis*, South. M. J. 28:509-511 (June) 1935.

16a. Since the preparation of this report the lesions of several patients have been successfully treated by electrocauterization. The method apparently warrants much consideration.

17. Dr. Harold Jacox was formerly assistant professor of roentgenology in charge of therapy at the University of Michigan Medical School and at present is director of the radiation therapy division at the Western Pennsylvania Hospital, Pittsburgh.

Initial and Number	Onset of Infection, Date	Treatment Previous to Sulfanilamide	Date Sulfanilamide Started	Diagnosis at Institution of Treatment	Symptomatic Improvement	Negative Smear in Days	Complications and Reaction	Days Followed	Condition on Last Visit	Comment
R. S. 1	2/15/37	None	2/15/37	Acute anterior urethritis; acute inguinal adenitis	Urethral discharge stopped 3/10/37	23	0	44	Glasses 1, 2, 3 clear, no shreds; asymptomatic	15 days' lapse from treatment and observation; last sulfanilamide on 3/13/37. Stricture dilated 3/23/37
A. E. 2	1/19/37	Urethral irrigations; alkalis internally	2/29/37	Chronic anterior and posterior urethritis; urethral stricture	Urethral discharge stopped in 3 days	3	0	28	Glasses 1, 2, 3 clear; glass 2 shows no W. B. C.; nocturia 2-3 times	
B. S. 3	1/25/37	Urethral irrigations	2/24/37	Subacute anterior and posterior urethritis	Urethral discharge, burning and nocturia stopped in 3 days	6	Lassitude and dizziness	39	Glasses 1, 2, 3 clear, no shreds; prostatic secretion normal, asymptomatic	Last sulfanilamide on 3/9/37
R. M. 4	2/22/37	Turpentine internally	2/26/37	Acute anterior urethritis	Urethral discharge and nocturia stopped in 2 days	3	0	38	Glasses 1, 2, 3 clear; glass 1 shows rare W. B. C.; prostatic secretion normal; asymptomatic	Last sulfanilamide on 3/6/37
O. L. 5	2/22/37	None	3/13/37	Subacute anterior and posterior urethritis; subacute prostatitis and seminal vesiculitis; terminal hematuria	Urethral discharge and burning stopped in 2 days	3	0	16	Glasses 1, 2, 3 clear, no shreds; glass 1 shows 1-2 W. B. C. / H. P. F.; prostatic secretion shows few clumps of W. B. C.; asymptomatic	Last sulfanilamide on 3/27/37
A. F. 6	3/14/37	None	3/29/37	Acute anterior and posterior urethritis; chronic recurrent prostatitis (16 months' duration)	Urethral discharge and burning stopped in 2 days	3	0	18	Glasses 1, 2, 3 clear, no shreds; glass 1 shows 1-2 W. B. C. / H. P. F.; prostatic secretion normal (4 times); nocturia 1 time; otherwise asymptomatic	Last sulfanilamide on 4/5/37
J. H. 7	3/18/37	None	3/24/37	Acute anterior urethritis; chronic epididymitis	Only "morning drop" after 3/29/37; this stopped 4/8/37	9 recurred in 14; again negative in 17	Reurrence; no reaction	17	Glass 1 clear, with shreds; glasses 2, 3 clear; smear from fossa navicularis shows a few W. B. C.; no gonococci	Took only 0.5 Gm. of sulfanilamide 4 times a day for first 5 days of treatment
C. L. 8	1/14/37	Urethral irrigations; alkalis internally; urethral instrumentation	3/25/37	Subacute anterior and posterior urethritis	Urethral discharge and burning stopped in 2 days	5	0	12	Glasses 1, 2, 3 clear; glass 1 shows rare shred; glass 2 shows 1-2 W. B. C. / H. P. F.; prostatic secretion normal	
W. B. 9	2/13/37	Urethral irrigations; prostatic massage; sitz baths; ice caps	3/27/37	Left, acute epididymitis; right, subacute epididymitis; subacute prostatitis and cystitis	In 3 days left epididymitis was one half former; painless; no nocturia or burning; 2d and 3d glasses clear; 1st glass hazy with shreds	3	0	14	Glasses 1, 2, 3 clear, rare shred in glass 1; glass 2 shows 1-2 W. B. C. / H. P. F.; prostatic secretion shows 6-8 W. B. C. / H. P. F.; asymptomatic	
C. M. 10	3/26/37	None	3/30/37	Acute anterior urethritis	Burning stopped in 2 days; urethral discharge minimal but still present in 12 days	..	0	11	Smear positive for gonococci; glass 1 cloudy with shreds, glass 2 clear; asymptomatic	
C. W. 11	3/27/37	One urethral injection, strong KgMnO_4	3/30/37	Acute anterior urethritis	Burning immediately improved; urethral discharge disappeared in 7 days	..	Lassitude and dizziness	11	Glasses 1, 2, 3 clear, shreds in glass 1; smear positive for gonococci; occasional "morning drop"	
H. C. 12	1926	Sounds, irrigations; prostatic massage, vaccine	3/30/37	Chronic anterior and posterior urethritis; chronic cystitis and prostatitis; urethral stricture	Urethral discharge stopped in 1 day; frequency stopped in 5 days	2	0	11	Glasses 1, 2, 3 clear, few shreds in glass 1; prostatic secretion normal; nocturia 1 time; occasional "morning drop"	
E. B. 13	3/16/37	Oral medication; urethral irrigations	3/30/37	Acute anterior and posterior urethritis	Urethral discharge and burning stopped in 1 day; frequency and nocturia stopped in 4 days	2	Methemoglobinemia fever (1 day)	11	Glasses 1, 2, 3 clear; no shreds; asymptomatic; reaction disappeared in 1 day	Last sulfanilamide on 4/7/37
A. R. 14	3/27/37	None	3/31/37	Acute anterior urethritis	Urethral discharge, burning, nocturia stopped in 7 days	2	Slight dizziness	9	Glasses 1, 2, 3 clear, 1 shred in glass 1; "morning drop"; asymptomatic	
J. S. 15	3/27/37	None	3/31/37	Acute anterior urethritis; pulmonary tuberculosis	Burning, nocturia stopped in 8 days; urethral discharge minimal, but present in 10 days	..	0	10	Glasses 1, 2, 3 clear, shreds in glass 1; minimal urethral discharge; positive for gonococci; asymptomatic	
C. M. 16	3/21/37	None	4/2/37	Acute anterior and posterior urethritis; acute inguinal adenitis	Urethral discharge, burning, nocturia stopped in 1 day; inguinal pain stopped in 2 days	2	0	8	Glasses 1, 2, 3 clear, 1 shred in glass 1; prostatic secretion normal (2 times); asymptomatic	
H. W. 17	4/4/37	Pyridium, urethral irrigations	4/6/37	Acute anterior and posterior urethritis; acute inguinal adenitis	Urethral discharge and burning stopped in 2 days	4	Slight dizziness	4	Asymptomatic; glasses 1, 2, 3 clear; rare shred in glass 1; glass 2 shows no W. B. C.	
J. G. 18	3/27/37	None	4/3/37	Acute anterior urethritis	Urethral discharge and burning stopped in 2 days	5	0	5	Nocturia 2 times, otherwise asymptomatic; glasses 1, 2, 3 clear	
A. S. 19	3/1/37	None	4/5/37	Subacute anterior and posterior urethritis; subacute prostatitis and seminal vesiculitis	Urethral discharge, frequency and burning stopped in 2 days	2	0	6	Asymptomatic; glasses 1, 2, 3 clear; many shreds in glass 1; prostatic and seminal vesicles not tender; prostatic secretion shows moderate amount of pus	No gonococci demonstrated after date of negative smear

* Since the paper was sent for publication, twenty-eight additional cases (to May 12) have been examined and placed under treatment as outlined. In summary to date, then, we have had forty-seven cases of various types of gonococcal infection of the genito-urinary tract. In thirty-six cases the gonococci and the urethral discharge disappeared in less than five days. In five cases the subjective symptoms disappeared completely; there was a marked diminution in the amount of the urethral discharge, but the gonococci were still present. In three cases there was no demonstrable response to the drug in that the symptoms persisted, there was no diminution of the discharge and many gonococci were present. In three cases there was a prompt response to the drug, but as treatment

was discontinued there was a recurrence of the infection. In two of these cases the infection disappeared following a second course of sulfanilamide. The most striking feature of our experience with these forty-seven cases has been that in no instance has there been a progression of the infection, even in the cases which showed no response to treatment. We realize that these cases have not been followed over a long period of time and in some instances the individual patients have failed to return for check up, so that the possibility of late recurrence in at least some of these patients cannot be definitely excluded. In the patients who have returned for check up, however, there has been no recurrence, except in the three instances mentioned.

out that infection with the hemolytic streptococcus, or changes brought about by the infection (probably a chemical reduction), is necessary for the activation of sulfonamide against the organism. Nineteen cases of beta hemolytic streptococcus infection of various types treated with these drugs are reported with dramatic improvement in the majority of cases.

In 1936 Buttle and his co-workers³ in connection with Proom reported that sulfanilamide exerted a marked protective action against meningococcic infection in mice. More recently, Proom⁴ has reported his results and states that "in mice infected with a suspension of meningococci in mucin, Prontylin protects up to one million lethal doses under optimum conditions." Schwenkter,⁵ in a recent report, presents a series of eleven cases of clinical meningococcic infection with sulfanilamide in which there was one death. He concludes that the treatment is as effective as that with antimeningococcic serum.

Marshall⁶ has devised a simple and accurate method for quantitative determination of the amount of sulfanilamide present in the blood, urine and other body fluids and has pointed out much about its fate in the body. He shows that it is rapidly absorbed from the gastro-intestinal tract, enters practically all the body fluids and is excreted rapidly and almost entirely by the urinary tract both in unchanged form and conjugated with an acetyl radical. Retention of the drug in the blood occurs in cases of renal impairment.

Justina H. Hill⁷ has found that the urine of patients excreting sulfanilamide has no bactericidal activity against beta hemolytic streptococci.

Sulfanilamide is relatively nontoxic, some patients tolerating 1 Gm. for 20 pounds (9 Kg.) of body weight daily for as long as a month without serious ill effects. A feeling of lassitude and dizziness is not uncommon during treatment. Colebrook reports several cases of sulfhemoglobinemia, which occurred in cases in which saline cathartics were given during administration of Prontosil. Sporadic cases of leukopenia have occurred, but none of these have been directly attributable to the drug. Acidosis, fever or a condition resembling methemoglobinemia may occur but are quickly relieved by appropriate therapy or reduction in dosage. While no serious toxic effects have been reported, it is obvious that patients must be kept under close medical observation during treatment.

The close biologic relationship between the meningococcus and the gonococcus is well known. It is difficult, however, to infect experimental animals with the gonococcus. It was therefore suggested to us by Dr. Perrin Long that the effect of sulfanilamide on clinical gonococcic infections be investigated directly without preliminary animal experimentation. An analysis of the result of oral administration of sulfanilamide in nineteen cases of gonococcic infection seen in the Brady Urological Dispensary of the Johns Hopkins Hospital is the basis of this report.

CLINICAL INVESTIGATION

Diagnosis.—The diagnosis of gonococcic infection was made on the demonstration of gram-negative intra-

cellular diplococci of typical morphology and distribution in the stained smear of urethral discharge or of the sediment from centrifugated urine. The smear was examined in practically all cases by two observers, and, in case of disagreement, cultures for the gonococcus were made. The diagnosis of posterior urethritis and cystitis were made by a correlation of the symptoms and the results of the three glass test. In some cases a diagnosis of acute or subacute prostatitis was possible on rectal palpation. A few patients were known to have had a chronic prostatitis before treatment was started.

Treatment.—With a few exceptions, all patients received, in four divided doses a day, 4.8 Gm. of sulfanilamide daily for two days, 3.6 Gm. daily for three days, and then 2.4 Gm. daily for from four to eight days. No other treatment, either local or general, was used. Fluids were not forced, as it was thought that this would hasten the elimination of the drug. Alcohol and sexual activity were prohibited. The patients were seen every two or three days during treatment, with few exceptions. Careful examination of the urine for pus and organisms was made on each visit. Cultures for gonococci and stained smears from the fossa navicularis were done whenever indicated.

The accompanying table briefly summarizes the results of examination and the clinical course of all our cases of gonococcic infection that have been followed for five days or more after beginning treatment with sulfanilamide.

There are, for analysis, nineteen cases of gonococcic infection which have been treated with sulfanilamide. Of these, the active urethral discharge disappeared in three cases in one day, in seven cases in two days, in two cases in three days, in two cases in seven days. In one case it disappeared in four days to recur slightly on the fourteenth day and again disappeared on the sixteenth day. One patient was treated for two days with sulfanilamide but failed to return until three days later, during which time no treatment was taken. The discharge had continued during this time. The drug was again administered for two days but the patient did not return until the twentieth day, at which time the discharge was still present and positive for gonococci. The drug was again administered and the discharge disappeared and the smear became negative for gonococci in the ensuing three days and has not recurred to date. The patient has now been seen twenty-four days since the treatment was discontinued; there is no discharge present and the urine is clear. In two cases the discharge is still present ten and twelve days respectively after the beginning of treatment. One patient, with chronic anterior and posterior urethritis, subacute prostatitis, subacute right epididymitis and acute left epididymitis had no urethral discharge, but gonococci were demonstrated on smear and culture from the urine. The organisms disappeared three days after the institution of treatment, and there had been marked diminution in the swelling of the left epididymis. The urine was hazy in the first glass, the second and third glasses were clear, and the patient's symptoms had disappeared. When seen last on the fourteenth day after the institution of the treatment, the patient was free from symptoms, there was no urethral discharge and the urine was clear in three glasses. Prostatic secretion showed from 6 to 8 white cells per high power field.

Stained smears from the urethral discharge and centrifugated urine became negative for gonococci (to date) in five cases in two days, in five cases in three

3. Buttle, G. A. H.; Gray, W. H., and Stevenson, Dora: Protection of Mice Against Streptococcus and Other Infections by Para Aminobenzenesulfonamide and Related Substances, *Lancet* 1.
4. Proom, H.: Therapeutic Action of F
in Meningococcal Infection of Mice, *Lancet* 1.
5. Schwenkter, Gelman, and Long: Treatment of Meningococci

Kendall, Jr., and Cutting, W. C.:
M. A. 108: 953 (March 20) 1937.
communication to the authors.

days, in two cases in five days, and in one case each in four, six and twenty-three days. In one case smears became negative on the ninth day, positive on the fourteenth day and again negative on the seventeenth day. In three cases gonococci are still present after eleven days.

Symptoms of burning and frequency disappeared in two cases in one day, in eight cases in two days, in two cases in three days, and in one case each in four, five, seven and eight days. There is no note on the history in three cases.

Symptoms of slight dizziness and lassitude occurred in four cases with the initial larger doses but disappeared when the amount of the drug was reduced. One patient had fever, general malaise and sulfhemoglobinemia for two days, but these symptoms disappeared within twenty-four hours after medication was discontinued.

Two patients with known preexisting chronic prostatitis and two patients with subacute prostatitis were found to have a normal prostatic secretion after treatment for from ten to twelve days. In three other cases of subacute prostatitis at the beginning of treatment, one subsequently showed from 6 to 8 white blood cells per high power field, one showed a few clumps of pus, and in the third the pus was only slightly reduced in six days.

In several instances it was noted that, as the urethral discharge began to disappear, the gonococci were found to lie extracellularly, with little or no evidence of phagocytosis by the leukocytes.

Five or six of the cases showed a much slower response to the administration of sulfanilamide than did the others, and we felt that three or four were little if any benefited by the drug. The reason for such failures is not clear. One of the patients had a very small amount of the drug during the first five days and another did not return for fifteen days during the early treatment. The others of this group were quite conscientious in attending the clinic and obeying instructions. Estimations of the concentration of sulfanilamide in the blood have not been made on these patients. It is possible that some abnormality in the metabolism of sulfanilamide in these particular individuals may explain some of the failures.

The use of sulfanilamide in gonococcic infections is as yet in an entirely experimental state. Nevertheless the surprisingly prompt response to treatment in the majority of our cases has deeply impressed all those who have seen them. The prompt disappearance of urethral discharge and symptoms of burning and frequency have been most striking, especially when contrasted with the clinical course of patients treated with the usual methods heretofore in use. It has been especially impressive to us that the infection in none of our treated cases has progressed from anterior to posterior urethritis or from posterior urethritis to prostatitis or epididymitis after the institution of the treatment.

While only one of our cases in which the discharge had been absent for a period of a week has shown a recurrence of the infection, it must be realized that larger series of cases must be followed over a longer period of time before a complete evaluation of sulfanilamide in the treatment of gonococcic infections can be determined. Further studies must also be made to determine the optimum dosage and the length of time during which treatment should be continued.

An emphatic warning should be sounded as to the possibility of reactions from this drug, as should be done of course in the clinical use of any new drug or treatment. Immediately on the complaint by the patient of lassitude or dizziness, the dosage must be reduced or the drug discontinued completely. We have observed no serious symptoms. Should symptoms persist, a complete blood study should be done.

Our relatively brief experience with the use of sulfanilamide in the treatment of gonococcic infections has led us to believe that this drug will prove of great value. The prompt response to treatment in the vast majority of our cases, the smooth clinical course, the fact that no complications have occurred and that the infection has not progressed, together with the reduction in hospital expenses from the use of the necessary drugs and medicaments previously used in the treatment of this type of infection, have impressed us profoundly. This preliminary report is therefore presented for the purpose of stimulating the careful use of this drug in clinics where large numbers of gonococcic infections can be closely followed, so that an accurate evaluation of sulfanilamide in the treatment of gonococcic infections can be determined and the optimum dosage and possible deleterious effects further studied.

EXPERIMENTAL STUDIES WITH SULFANILAMIDE AND WITH PRONTOSIL

IN HEMOLYTIC STREPTOCOCCUS INFECTIONS

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The results obtained by the use of sulfanilamide and of prontosil¹ in the treatment of infections produced by hemolytic streptococci,² and, to a lesser degree, of infections produced by type III pneumococci,³ leave no doubt as to the therapeutic efficacy of these compounds; but at the same time an adequate explanation of the mechanism of their action is lacking.

Colebrook, Buttle and O'Meara⁴ found sulfanilamide to be bactericidal against the hemolytic streptococcus in vitro and, to a limited degree, in vivo. They also recognized a discrepancy between the remarkable therapeutic results obtained and the limited bactericidal activity observed and suggested that the enhanced bactericidal action of the blood was supplemented by that of the tissues of the whole animal. Long and Bliss,⁵ on the other hand, considered the stimulation of phagocytic activity of the polymorphonuclear leukocytes and of the monocytes of paramount importance in the mechanism of action of these drugs.

From the Institute of Pathology, Western Pennsylvania Hospital. Read in abstract form before the annual meeting of the Society of American Bacteriologists, Indianapolis, Dec. 30, 1936, and before the Allegheny County Medical Society in January 1937.

1. In this paper prontosil refers to the disodium salt of 4-sulfamidyl-phenyl-2-azo-7-acetylamino-1'-hydroxynaphthalene-3', 6' disulfonic acid, a product of Winthrop Chemical Company.

2. The literature has been listed by Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives, Arch. Surg. 31: 351 (Feb.) 1937.

3. Rosenthal, S. M.: Pub. Health Rep. 52: 43 (Jan. 8) 1937. Cooper, F. B.; Gross, Paul, and Mellon, R. R.: Proc. Soc. Exper. Biol. & Med. 36: 148 (March) 1937. Gross, Paul, and Cooper, F. B.: Ibid. 36: 225 (March) 1937.

4. Colebrook, Leonard; Buttle, G. A. H., and O'Meara, R. A. Q.: Lancet 2: 1323 (Dec. 5) 1936.

5. Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives, J. A. M. A. 108: 32 (Jan. 2) 1937.

A second point of interest is the paradoxical situation first mentioned by Nitti and Bovet⁶ and subsequently confirmed by Colebrook and Kenny,⁷ as well as by Long and Bliss;⁵ namely, that, while good therapeutic results were obtained with these drugs in mice infected with hemolytic streptococci of high virulence, little if any effect was obtained with strains of low virulence.

In this paper we are reporting the results obtained by treating mice infected with hemolytic streptococci of different virulence levels with sulfanilamide and with prontosil. The data obtained have a bearing on the points of interest just mentioned.

Two strains of hemolytic streptococci were used: the "Stoddard" strain, isolated from a case of septicemia at the Western Pennsylvania Hospital, and the "Pion" strain, which was obtained from the Pasteur Institute. The former had spontaneously acquired high virulence without animal passage and was used at the time of maximal virulence and also during a period of spontaneously diminishing virulence. The latter culture was considered moderately virulent.

NO. 1. STODDARD CULTURE OF HIGH VIRULENCE

The effect of prontosil and sulfanilamide was determined on mice infected with approximately 1,000 minimum lethal doses (determined prior to and at the time of the experiment) and initial treatment was begun after the expiration of various intervals.

Seventy-two mice were infected intraperitoneally with 0.5 cc. of a 10^{-6} dilution of a sixteen hour broth culture of the Stoddard strain (in its mucoid phase) and were divided into nine groups of eight mice each, as shown in charts 1 and 2. Group 1 served as untreated controls, while groups 2, 3, 4, 5 and 6 were given 10 mg. of prontosil subcutaneously two, four, six, eight and ten hours respectively after infection. The remaining three groups (7, 8 and 9) were given 25 mg. of sulfanilamide by mouth six, eight and ten hours

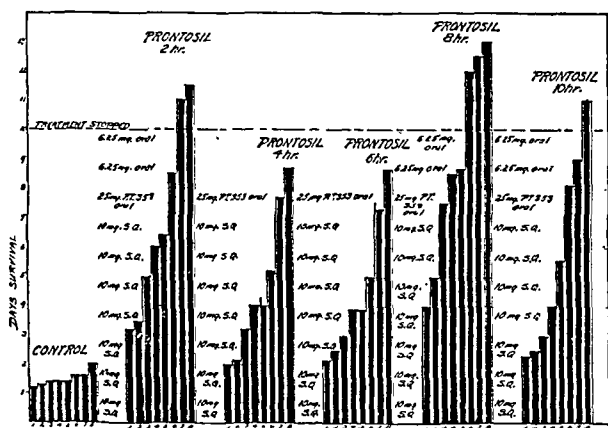


Chart 1.—Stoddard (mucoid) 0.5 cc. of 1:1,000,000 sixteen hour broth culture. The prontosil used is the disodium salt of 4-sulfamidophenyl-2'-azo-7'-acetyl-amino-1'-hydroxynaphthalene-3', 6' disulfonic acid.

respectively after infection. Further treatment of the animals is indicated in the graphs.

The resulting fatalities came to autopsy; sections were made of the livers, and spleens and smears of the peritoneum and heart blood were stained by the Gram method. Many cultures were also made.

6. Nitti, F., and Bovet, D.: Compt. rend. Soc. de biol. **119**:1277, 1935.

7. Colebrook, Leonard, and Kenny, McEave: Lancet **1**:1297 (June 6) 1936.

While all the control mice died within two days, the mice treated with prontosil showed a marked increase in survival time, as clearly indicated in chart 1. The average survival time varied with the different prontosil treated groups and could not be correlated with the lapse of time between infection and initial treatment.

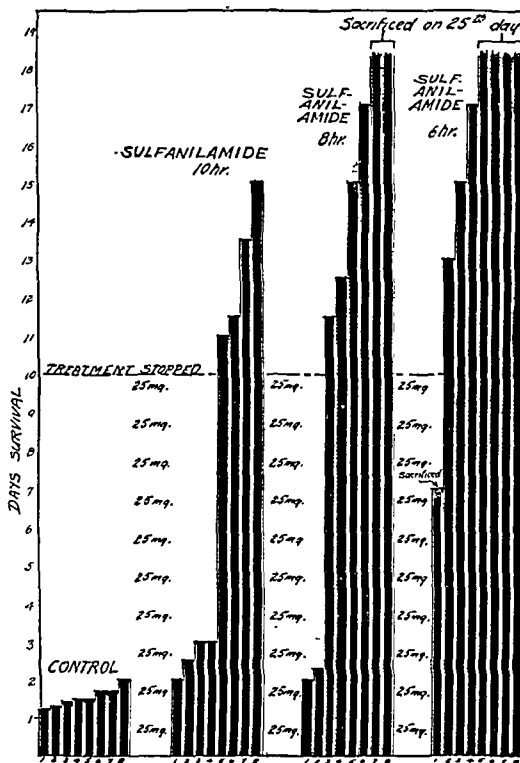


Chart 2.—Stoddard (mucoid) 0.5 cc. of 1:1,000,000 sixteen hour broth culture.

Despite continued treatment, all animals ultimately died of the infection. Postmortem examinations were uniform and showed streptococci in the peritoneum and in the heart blood of every animal.

Reference to chart 2 indicates that the mice treated with sulfanilamide six hours after infection showed 50 per cent survival; in the eight hour group 25 per cent survival, and no survivals in the group in which treatment was delayed until ten hours after infection. Stained smears and cultures of the peritoneal cavity, blood, spleen and liver of animals that were killed after twenty-five days were consistently negative.

NO. 2. STODDARD STRAIN (HIGH VIRULENCE, OVERWHELMING DOSE)

While this culture was at the height of its virulence, an additional series of thirty mice was infected with about 200,000 minimum lethal doses. Ten were treated with sulfanilamide and ten with prontosil, as indicated in chart 3. While the treated animals lived longer than the controls, all of them died of streptococcic peritonitis and septicemia.

NO. 3. STODDARD CULTURE OF MODERATE VIRULENCE

A series of forty mice was infected intraperitoneally with 0.5 cc. of a 10^{-5} dilution of a nineteen hour broth culture of the Stoddard organism in its mucoid phase. Since a marked drop in virulence had occurred, this dose represented approximately 10 minimum lethal doses (determined by previous and simultaneous titra-

tions). Ten of these mice served as untreated controls; ten were given an initial dose of 25 mg. of sulfanilamide; ten received 6.25 mg. of the same drug, and ten mice were given 6.25 mg. of prontosil. All drugs were given by mouth within half an hour after infection. Daily oral treatments of 6.25 mg. of the respective drugs were administered for nine consecutive

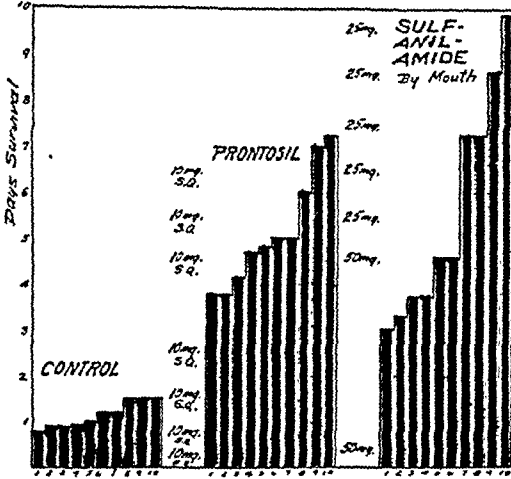


Chart 3.—Stoddard (mucoid) 0.5 cc. of 1:5,000 seven hour broth culture.

days, after which all treatment was discontinued. The results (chart 4) indicate 100 per cent recovery in each of the three treated groups, against 90 per cent fatality in the control group.

NO. 4. PION STRAIN (MODERATE VIRULENCE)

The virulence of this strain was such that 0.5 cc. of a 10^{-3} dilution of an eighteen hour broth culture killed 20 Gm. mice in about ninety hours. Thirty mice were infected with this amount and treated as indicated in chart 5. Whereas nine out of ten of the controls died, the sulfanilamide treated group showed 60 per cent recovery, and the prontosil treated group 30 per cent recovery.

PHAGOCYTIC ACTIVITY OF WHITE BLOOD CELLS AND OF RETICULO-ENDOTHELIAL CELLS

Smears from the peritoneal exudate, as well as histologic sections of the liver and spleen of mice of the various experiments, were examined for evidence of phagocytosis. A polymorphonuclear leukocyte which contained a few streptococci was found occasionally in the controls and less frequently in the treated animals. The reticulo-endothelial cells of either the treated or the control groups showed little or no indication of phagocytosis.

NO. 5. CIRCUMSCRIBED FOCI OF INFECTION

Six guinea-pigs of about 400 Gm. weight were given three simultaneous 0.1 cc. intradermal injections of undiluted, virulent Stoddard culture. Three of these animals had received 500 mg. of sulfanilamide by mouth four hours prior to infection, followed by a second dose of 300 mg. on the second day, and a third dose of 250 mg. on the fourth day. Representative lesions were excised after one, two, three and five days respectively from both treated and untreated animals. Sections were made and stained with hematoxylin and eosin and by the Gram method.

A second series of six guinea-pigs (average weight 250 Gm.) were given two simultaneous intradermal 0.1 cc. injections of a 1:10 dilution of a twenty-four hour culture of the same strain. The three animals that

had received 250 mg. of sulfanilamide by mouth four hours previously were subsequently given the same oral dose on the second, fourth and fifth days respectively.

The injections in the first series resulted in every instance in the production of erythematous, indurated lesions which rapidly became pustulous and ulcerated. The lesions of the treated animals were smaller and more sharply circumscribed; the ulcers were more superficial and healed quickly. The lesions of the untreated guinea-pigs were larger and more diffuse, and some were associated with secondary purulent folliculitis, which eventuated in the death of the animals from streptococcal septicemia on the fourth, eighth and fourteenth days respectively. One of the treated animals of the first series succumbed on the eighteenth day to streptococcal septicemia, while the other two survived.

The guinea-pigs in the second series showed similar but more marked differences between the lesions of the treated and those of the untreated animals. Microscopic sections of the biopsies, regardless of age or treatment, showed masses of streptococci in the deeper tissues as well as near the surface of the skin. No apparent qualitative difference in histologic response to the organism as the result of treatment could be detected. There was no greater phagocytic activity in the lesions of the treated animals than in those of the controls.

COMMENT

It is not unlikely that differences inherent in the cultures employed may be an important factor in explaining the discrepancies between our observations and those of Long and Bliss⁵ regarding the rôle of phagocytosis in the mechanism of the action of these drugs. A streptococcus in the mucoid phase, such as we employed, is well understood to be highly resistant to phagocytosis—at least until it is sensitized by the opsonizing powers of the blood. At any rate, our

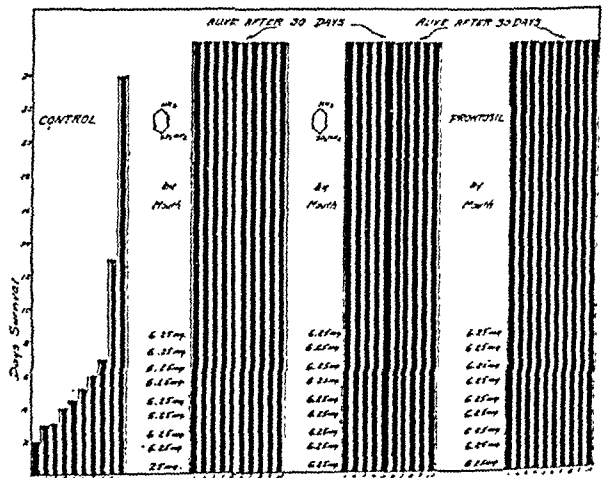


Chart 4.—Stoddard (mucoid) 0.5 cc. of 1:100,000 nineteen hour culture (intraperitoneal).

therapeutic results must find explanation in some other defense mechanism than phagocytosis.

The foregoing guinea-pig experiments also indicate that the drugs do not alter the qualitative character of the tissue response to the hemolytic streptococcus. The presence of masses of streptococci in the deeper tissues of both treated and untreated animals alike, regardless of the time at which they were examined, does not speak favorably for the assumption of Colebrook and his co-workers⁴ that the mechanism of action of the sulf-

sulfanilamide compounds consists of the bactericidal action of the blood, supplemented by that of the tissues of the whole animal.

It is unfortunate that these experiments do not throw any light on the mechanism of action, except in a negative way.

Our favorable therapeutic results with hemolytic streptococcus cultures of medium virulence are at variance with the results of other investigators.⁸ It is possible that these divergent results may be explained by differences in the infecting doses. Our infecting doses were from 1 to 10 minimum lethal doses, whereas either the dosage was not indicated in the reports that cited negative results or it was greater than ours.

CONCLUSIONS

1. Both sulfanilamide and prontosil exhibit marked therapeutic effects in mice against hemolytic streptococcus infections.

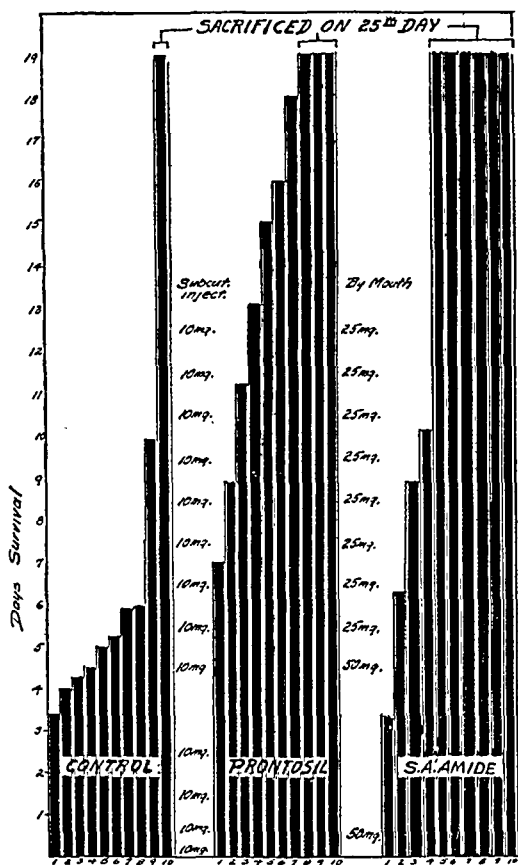


Chart 5.—Pion strain 0.5 cc. of 1:10,000 eighteen hour broth culture.

2. This effect obtains for strains of both medium and high virulence.

3. Our experiments show no indication that phagocytosis is a factor in the mechanism of the therapeutic action of these drugs.

4. Proper treatment of guinea-pigs with sulfanilamide results in a localization and rapid healing of experimental intradermal hemolytic streptococcus infections, which in the untreated animal may disseminate with fatal results.

5. No qualitative changes in the character of the histologic response to the hemolytic streptococcus as a result of sulfanilamide administration have been noted.

8. Long and Bliss,⁴ Nitti and Bovet,⁵ Colebrook and Kenny.⁷

COOPERATIVE CLINICAL STUDIES IN THE TREATMENT OF SYPHILIS

THE EFFECT OF SPECIFIC THERAPY ON THE PROPHYLAXIS AND PROGRESS OF CARDIOVASCULAR SYPHILIS

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The method of isolation of *Spirochaeta pallida* by means of the darkfield and a specific treatment for early syphilis have been available for more than twenty years. Yet even now, incidence studies¹ throughout the United States indicate that one half of the infected population neglect treatment until late or crippling manifestations force them to seek medical care. Therefore it is of paramount importance that not only the apparent late conditions such as dementia paralytica and tabes be recognized, but also the sometimes cryptic late conditions such as cardiovascular syphilis. The medical profession is well aware of the many cases that escape the clinical observation of the physician and all too frequently come to autopsy with undiagnosed cardiovascular syphilis. Every effort should be made to recognize the existence of syphilitic cardiovascular involvement while in the stage of uncomplicated syphilitic aortitis before the development of irreparable anatomic or functional damage to the heart.

INCIDENCE

Annually in the United States nearly a half million people with late syphilis seek treatment for the first time, approximately 50,000 of whom have obvious cardiovascular syphilis on admission.

From a pathologic point of view Warthin,² using both gross and microscopic criteria, found specific cardiovascular changes in from 86 to 98 per cent of patients with syphilis, while Langer³ in the 23,105 autopsies of the Virchow Krankenhaus found that from 70 to 80 per cent of the syphilis cases showed cardiovascular involvement. Guldberg,⁴ in a survey of 8,235 autopsies at Harbitz Pathologic Clinic in Oslo, found that more than 58 per cent of 481 cases of syphilis showed evidence of vascular involvement. In 261 cases it was the primary condition and among these it was the cause of death in 218.

The point has been made by several writers that the higher incidence of cardiovascular syphilis may be due to modern methods of therapy with arsenicals. The

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1. Usilton, Lida J.: Total Prevalence of Venereal Disease in the United States, Ven. Dis. Inform. **11**: 542 (Dec.) 1930.

2. Warthin, A. S.: The Lesions of Latent Syphilis, South. M. J. **24**: 273-278 (April) 1931.

3. Langer, E.: Die Häufigkeit derluetischen Organveränderungen, insbesondere der Aortitis luetica, München. med. Wchnschr. **73**: 1782-1785 (Oct. 22) 1926.

4. Guldberg, G.: Ueber Sektionsbefunde bei Syphilitikern, Arch. f. Dermat. u. Syph. **166**: 730-757, 1932.

report of the German and Russian syphilis expedition⁵ to Burjat, Mongolia, for the study of virgin syphilis showed that cardiovascular syphilis was as frequently noted as in Berlin material treated with arsenicals and heavy metal. Moreover, in the Cooperative Clinical Group study⁶ 69 per cent of the cardiovascular syphilis cases had had no previous treatment or only a little heavy metal and for cases of syphilitic aortitis with aneurysm this percentage was as high as 84. Thus one is forced to the conclusion that it is not treatment but the lack of it that predisposes the patient to syphilitic cardiovascular involvement. Analysis of those cases in which cardiovascular syphilis developed despite adequate treatment showed that, with the exception of two of the 640 cases of cardiovascular syphilis, treatment had been very irregularly given or had been delayed until syphilis had reached the late stages.

DIAGNOSTIC METHODS

The principal symptoms and signs in the records of cases of cardiovascular syphilis diagnosed as uncomplicated syphilitic aortitis in the Cooperative Clinical Group material are given in the order of their importance:

1. Teleroentgenographic and fluoroscopic evidence of aortic dilatation.
2. A tympanitic, bell-like, tambour accentuation of the second aortic sound.
3. A history of circulatory embarrassment.
4. Increased retromanubrial dulness.
5. Progressive cardiac failure.
6. Substernal pain.
7. Paroxysmal dyspnea.⁷

It is observed that, in those patients known to be syphilitic and with no evidence of mitral disease, these signs and symptoms are similar to those which Carter and Baker⁸ originally announced as the criteria for diagnosis of aortic regurgitation and aneurysm. This was subsequently reported by Moore, Danglade and Reisinger,⁹ who limited their study to uncomplicated syphilitic aortitis. The latter felt that the presence of three or more of these signs and symptoms in a syphilitic patient under 50 years of age, free from mitral disease and in the absence of hypertension, was strong evidence for the diagnosis of uncomplicated syphilitic aortitis and that the presence of any two of them renders the diagnosis probable.

It is hoped that as the result of these and other studies the attention of the physician will be called more closely to the importance of cardiovascular syphilis and to the necessity for its early detection. There were 270 syphilis cases in the group material which had signs and symptoms suggesting cardiovascular syphilitic involvement, and yet the stringency of present day criteria prevented their inclusion. It is felt that with careful history taking and with very careful physical examination, including x-ray studies, probably a considerable proportion of the patients thus far overlooked will in the future be detected in the early stage when the chances for the alleviation of their symptoms through treatment are more favorable.

MATERIAL STUDIED

Among 6,253 cases admitted with latent or late syphilis (principally central nervous system or cardiovascular), which were treated for six months or longer, there were 9.9 per cent who on admission manifested or subsequently developed cardiovascular syphilis. It was found that 4.9 per cent were cases of uncomplicated syphilitic aortitis, 4.1 per cent aortic regurgitation, 1.2 per cent aortitis with aneurysm, and 0.8 per cent myocarditis.

INFLUENCE OF COLOR AND SEX

This study confirmed the observations of others that the Negro is much more prone to develop cardiovascular syphilitic involvement than is the white patient. The percentage of Negro patients affected was three times as high as the white, and in the males this proportion was even more marked, being four times as great, while in the females the percentage was only a little over twice as high. The percentage of males was somewhat higher than that of the females in both the white and the Negro.

DURATION OF THE INFECTION TO DETECTION OF CARDIOVASCULAR SYPHILIS

There were twenty-three patients, or 7 per cent, in whom the cardiovascular syphilitic involvement was detected within five years after the syphilitic infection; in fact, in three instances uncomplicated syphilitic aortitis was diagnosed in the second year of infection. The highest percentage of cardiovascular syphilis was detected in the two decades ten to twenty years and twenty to thirty years after infection. In three patients the diagnosis was made forty years after infection.

BLOOD AND SPINAL FLUID SEROLOGIC REACTIONS

In those cases in which a serologic test of the blood was done within ten days before or after detection of cardiovascular syphilis, 79 per cent showed slight or definite positivity. Three of the five clinics used not only the Wassermann test but also one or more of the precipitation tests. One clinic used only the Kahn precipitation test, and the other clinic used several modifications of the Wassermann test. Lumbar punctures were not done on all the patients. In certain instances of advanced aneurysm or aortic regurgitation, clinical judgment precluded this procedure, but in 342 of the 642 patients on whom an examination of the spinal fluid was made 56 per cent showed definite abnormalities. The spinal fluid examination consisted of the Wassermann test, the globulin reaction, the colloidal gold or gum mastic test and the cell count.

CONCOMITANT SYPHILIS

Various writers in the past have mentioned the frequency of concomitant involvement of the central nervous system in connection with cardiovascular syphilis. The material of the Cooperative Clinical Group showed that in this series 278, or 43 per cent, of the patients also had syphilis of the central nervous system. In 9 per cent of the cases the syphilis of the central nervous system was asymptomatic. Therefore a physician managing a case of cardiovascular syphilis would do well to examine the patient carefully from the standpoint of concomitant involvement of the central nervous system, and, vice versa, the individual who has syphilis of the central nervous system should be studied very carefully from the standpoint of cardiovascular involve-

5. Jessner, M., and Rossiansky, N.: Die Ergebnisse der deutsch-russischen Syphilis Expedition 1928, Arch. f. Dermat. u. Syph. 160: 224-225, 1930.

6. Cole, H. N.: Cooperative Clinical Studies in the Treatment of Syphilis. Cardiovascular Syphilis, to be published.

7. Two other signs of value also were important enough to be mentioned, systolic murmur in the aortic area and visibly or palpably increased pulsation in the episternal notch.

8. Carter, E. P., and Baker, B. M., Jr.: Certain Aspects of Syphilitic Cardiac Disease, Bull. Johns Hopkins Hosp. 48: 315-338 (May) 1931.

9. Moore, J. E.; Danglade, J. H., and Reisinger, J. C.: Diagnosis of Syphilitic Aortitis Uncomplicated by Aortic Regurgitation or Aneurysm, Arch. Int. Med. 49: 753-766 (May) 1932.

ment. What might be considered excellent preliminary treatment for syphilis of the central nervous system might well be far from suitable for concomitant cardiovascular syphilis. Other forms of concomitant syphilis occurred with a frequency of 4 per cent or less.

PROPHYLACTIC VALUE OF EARLY TREATMENT
IN PREVENTION OF CARDIOVASCULAR
SYPHILIS

The Cooperative Clinical Group material presents most encouraging data on the possible prevention of cardiovascular syphilis through treatment of early

TABLE 1.—*Prophylaxis of Cardiovascular Syphilis by Treatment of Early Syphilis*

Amount and Type of Treatment During Early Syphilis	Duration of Infection to Last Observation					
	3 to 10 Years			10 to 20 Years		
	Total Cases	Number with Cardiovascular Syphilis	Per Cent	Total Cases	Number with Cardiovascular Syphilis	Per Cent
Arsphenamine and heavy metal:						
More than 20 doses:						
Regularly given.....	323	1	0.3	10	..	...
Irregularly given....	199	4	2.0	41	1	2.4
Less than 20 doses:						
Regularly given.....	197	1	0.5	16	..	...
Irregularly given....	216	9	4.2	38	6	15.8
Total.....	935	15	1.6	105	7	6.7

syphilis. In 3,641 cases in which treatment was administered during the early stages of the infection, less than 1 per cent have developed cardiovascular involvement to date. Only four patients, or one in a thousand, ever developed any of the graver forms of cardiovascular syphilis, and each of these had received less than twenty doses of an arsphenamine with interim heavy metal. In fact, in only two patients who were adequately and regularly treated during the early stages of syphilis was a definite diagnosis, even of uncomplicated syphilitic aortitis, ever made.

However, since 71 per cent of the cases of early syphilis have not been followed for a period of more than three years, there is a strong probability that in certain of these cases cardiovascular syphilis will be detected as the observation period is extended. In this series of treated early syphilis, 935 patients were followed for a period of from three to ten years, and 105 were followed for from ten to twenty years. Of the 935 patients fifteen, or 1.6 per cent, developed cardiovascular syphilis, and among the 105 patients, seven, or 6.7 per cent, developed cardiovascular syphilis. The detailed observations as related to treatment in the early stages of syphilis are shown in table 1. It is apparent from this table that the patient adequately and regularly treated for syphilis and followed for from three to twenty years after infection will be almost exempt from cardiovascular involvement. Moreover, there were no cases of aneurysm or of aortic regurgitation in such patients.

COMPARISON OF TREATED AND UNTREATED
EARLY SYPHILIS

The effectiveness of treatment as a preventive measure against late accidents in syphilis is most striking when these data are projected against the end results in cases of untreated syphilis. Bruusgaard's¹⁰ analysis

of Boeck's cases of purposely untreated early syphilis revealed 56 per cent of the cases followed for from three to twenty years after infection as symptom free, as compared with 93 per cent of such cases in the Cooperative Clinical material when they had received arsphenamine with interim heavy metal. Since only twenty years of the arsphenamine era has been passed through, it is impossible to prognosticate the relative effectiveness of good treatment as opposed to none in the decades twenty to thirty and thirty to forty years after infection, in which intervals Bruusgaard observed the highest percentage of patients with definite cardiovascular syphilis. However, the trend throughout the first and second decades appears most favorable for treatment.

TREATMENT PRIOR TO DETECTION OF
CARDIOVASCULAR INVOLVEMENT

A striking point that has been brought out by the Cooperative Clinical Group and emphasized also by others is the large percentage of patients with cardiovascular syphilis who have had little or no previous treatment. In the present study 69 per cent of the patients had had no treatment or only a little heavy metal prior to the detection of cardiovascular syphilis. An analysis of the individual groups indicates that the more advanced the involvement on admission the higher the percentage of untreated syphilis, as shown by the

TABLE 2.—*Effectiveness of Treatment After Detection of Uncomplicated Syphilitic Aortitis, Aortic Regurgitation or Saccular Aneurysm in the Prolongation of Life*

Amount of Treatment After Detection of Uncomplicated Syphilitic Aortitis, Aortic Regurgitation or Aneurysm		Living		Dead*		Average Duration of Life in Months After Detection of Uncomplicated Syphilitic Aortitis, Aortic Regurgitation or Saccular Aneurysm		
Arsenical	Heavy Metal	Number	Per Cent	Number	Per Cent	Living Dead Total		
	Uncomplicated	Syphilitic Aortitis†		Aortic Regurgitation		Saccular Aneurysm		
Little	Little	49	76.6	15	23.4	53	34	49
Little	Much	27	77.1	8	22.9	56	56	56
Much	Little	35	87.5	5	12.5	66	56	65
Much	Much	114	89.1	14	10.9	60	85	62
Total.....		225	84.3	42	15.7	59	58	59
Aortic Regurgitation								
Little	Little	39	72.2	15	27.8	41	38	40
Little	Much	34	68.0	16	32.0	47	45	46
Much	Little	9	64.3	5	35.7	40	39	40
Much	Much	59	80.8	14	19.2	56	53	55
Total.....		141	73.8	50	26.2	49	44	47
Saccular Aneurysm								
Little	Little	11	52.4	10	47.6	34	40	37
Little	Much	9	90.0	1	10.0	42	15	39
Much	Little	2	50.0	2	50.0	24	31	27
Much	Much	15	62.5	9	37.5	65	58	75
Total.....		37	62.7	22	37.3	56	45	52

Note.—Arsenical injections: Little, less than thirteen, inadequate; much, thirteen or more, adequate. Heavy metal injection or weeks of rubs: Little, less than 20, inadequate; much, 20 or more, adequate.
* Deaths from all causes.
† Diffuse or fusiform aneurysms included under uncomplicated syphilitic aortitis.

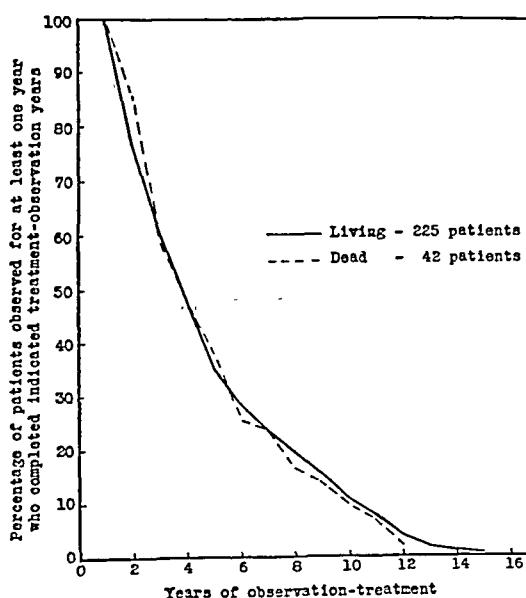
fact that 62 per cent of the patients with uncomplicated syphilitic aortitis, 76 per cent of those with aortic regurgitation and 84 per cent in the group aortitis with aneurysm have been untreated previously. The further interesting observation was made that the amount of

10. Bruusgaard, E.: Ueber das Schicksal der nicht spezifisch behandelten Luetiker, Arch. f. Dermat. u. Syph. 157: 309, 1929.

treatment with arsphenamine and interim heavy metal prior to the detection of uncomplicated syphilitic aortitis was a definite factor in protecting the patient from progression to a graver heart involvement. Among the living patients eighteen progressed from uncomplicated syphilitic aortitis to a graver form; only two of these had received any modern antisiphilitic therapy prior to the detection of uncomplicated syphilitic aortitis. Among the eight dead patients who had progressed, only two had received as much as six doses of an arsenical with interim heavy metal prior to the detection of the uncomplicated syphilitic aortitis.

STATISTICAL CONTROLS FOR MEASURING EFFECTIVENESS OF TREATMENT

In order to meet the possible criticism that the patient's physical condition on admission was the factor that prevented those who died from receiving anti-syphilitic treatment rather than that the administered treatment had an important part in the continued life



Years of observation-treatment in patients with uncomplicated syphilitic aortitis, who were observed for at least one year.

of the individual, the following controls were created for the purpose of determining the effectiveness of treatment in the prolongation of life. Both the living and dead patients who were under treatment or observation for less than one year were eliminated. Then the years of life for the total patients in the two groups were determined and when it was found that proportionately as many of the living patients as those who died had been followed throughout each of the treatment-observation year periods it was concluded that the two groups had the same opportunity of receiving the indicated amounts of treatment and that therefore whatever prolongation of life had been accomplished was actually attributable to the varying amounts of treatment. The accompanying chart shows for cases of uncomplicated syphilitic aortitis the years of observation-treatment life completed by the indicated percentage of patients living as compared with those who have died.

The cases used in measuring prolongation of life through treatment in each of the varying stages of cardiovascular syphilis are limited to those followed for one year or more.

EFFECT OF TREATMENT AFTER DETECTION OF CARDIOVASCULAR SYPHILIS

Table 2 shows the effectiveness of treatment after cardiovascular syphilis had been diagnosed, expressed in terms of percentages of such patients who have died and the prolongation of life after the detection of cardiovascular syphilis.

The amounts of treatment after the detection of a syphilitic aortitis, aortic regurgitation or saccular aneurysm to the last observation or death are considered in four groups: those patients who received none or a small amount of arsphenamine and heavy metal; those who received little arsphenamine and much heavy metal; those who received little heavy metal and much arsphenamine, and the adequately treated group, those who received much of both drugs. Thirteen or more doses of arsphenamine with twenty injections or more of heavy metal or weeks of rubs was considered as much or adequate treatment; less than these amounts was considered as little or inadequate antisiphilitic treatment.

There were 267 patients with uncomplicated syphilitic aortitis, 16 per cent of whom had died and 84 per cent were still living on termination of the study. The percentage of deaths is higher among those who received inadequate treatment than among those who received an adequate amount of treatment after the detection of the uncomplicated syphilitic aortitis, 23 and 11 per cent respectively; however, the dead include patients dead from any cause. Among the forty-two patients who have died, those who had received an adequate amount of both drugs after the detection of uncomplicated syphilitic aortitis lived eighty-five months as compared with thirty-four months in those cases in which an inadequate amount was administered. In those cases in which an inadequate amount of either of the drugs was administered in combination with an adequate amount of the other, the life span was approximately fifty-six months. In those patients still living the effect of treatment on the prolongation of life cannot be expressed in definite terms, since one cannot foresee the ultimate life span of these individuals. However, there is a strong probability that the adequately treated patient will average a greater number of months of life than the inadequately treated. This statement is premised on the facts that proportionately twice as many inadequately treated patients have died as is true of the adequately treated, and also that more than one half of the total living patients have already received an adequate amount of therapy.

Similar data for the patients who are under treatment or observation for syphilitic aortic regurgitation also are given in table 2; 74 per cent of these patients were still living at the termination of the study and 26 per cent had died. The effectiveness of treatment in the prolongation of life can be observed in this more advanced form of syphilitic heart involvement. The average duration of life to the termination of the study when an inadequate amount of therapy was given was forty months, as compared with fifty-five months when an adequate amount of therapy was given. In the very small group of saccular aneurysms, fifty-nine in number, the average duration of life on termination of this study had been appreciably increased by adequate therapy, thirty-seven months to seventy-five months. The size of the group of aneurysms studied prohibits any definite statement on the end results of treatment but it appears

that there is some prolongation of life possible through adequate therapy begun after the detection of a saccular aneurysm.

PROGRESS OF UNCOMPLICATED SYPHILITIC AORTITIS IN SPITE OF TREATMENT

Of the total group of 267 cases of uncomplicated syphilitic aortitis followed for a year or more after detection of cardiovascular involvement, twenty-six progressed to more severe types of cardiovascular syphilis, 7 per cent to aortic regurgitation and 2 per cent to aortitis with saccular aneurysm. As was stated previously, only four of the twenty-six patients that progressed had received any treatment with an arsenical and interim heavy metal previous to the diagnosis of uncomplicated syphilitic aortitis. However, some of these subsequently had what would be considered good therapy, and in spite of this progressed, again confirming the advantage of preventive over curative treatment. In fact, eleven of the twenty-six progressing patients had more than eighteen doses of an arsenical with heavy metal after the detection of the uncomplicated syphilitic aortitis. It is also worth mentioning that none of these patients had ever had any treatment previous to the diagnosis. Five out of nineteen patients progressing to aortic regurgitation had received twenty-five or more arsenical injections. Indeed, it appears quite probable that certain of these cases may have progressed as the result of injudicious treatment.

SYMPTOMATIC RELIEF WHEN TREATMENT IS GIVEN AFTER DETECTION OF THE CARDIOVASCULAR INVOLVEMENT

What in the way of relief from symptoms can be expected if therapy is instituted for a syphilitic cardiovascular condition? In each of the stages of syphilitic cardiovascular involvement a higher percentage of patients experienced relief from their symptoms from thirteen or more doses of an arsphenamine with interim heavy metal than with less than this amount. The patients with uncomplicated syphilitic aortitis obtained relief in 67 per cent of the cases adequately treated as compared with 38 per cent inadequately treated. Among the patients with aortic regurgitation, relief was obtained in 60 per cent with adequate therapy as compared with 30 per cent inadequately treated. In the patients with saccular aneurysm, relief was obtained in 56 per cent of the cases adequately treated as compared with 30 per cent inadequately treated. Comparable forms of medical cardiac regimen had been used in all cases regardless of whether antisypilitic treatment was administered. These data indicate that adequate treatment not only prolongs life but also affords an alleviation of symptoms in a fair proportion of the cases.

THERAPEUTIC PARADOX

In view of the frequent concomitant presence of syphilis of the central nervous system and of cardiovascular syphilis, the physician may well use extreme care in instituting therapy. Any evidence of aortitis, aortic regurgitation or aneurysm would probably require a change in the type of therapy for central nervous system syphilis. Otherwise there might well ensue the sudden effect of a Herxheimer reaction or the slower effects of the "therapeutic paradox."

Wile¹¹ has called attention to the fact that certain patients with cardiovascular syphilis, if started imme-

diately on an arsenical drug, will show paradoxical improvement of symptoms at first, only later to have them aggravated. He feels that if an arsenical is used for beginning treatment in cardiovascular syphilis there may be too rapid healing of the inflammatory lesion, so that fibrosis, distortion and contraction of the tissues may result, and, for purposes of description, aortitis with mechanically intact valve leaflets may have so much fibrosis and contraction of the leaflets that the condition is changed into aortic regurgitation. Of course, the same theory applies not only to aortitis but also to aneurysm, to aortic regurgitation and even to syphilitic myocarditis.

TREATMENT OF CARDIOVASCULAR SYPHILIS

Since 78 per cent of the cases with severe cardiovascular syphilis had received little or no therapy for syphilis, the immediate need for better treatment in all early syphilis is recognized. The physician can and should prevent cardiovascular syphilis by thorough and continuous treatment of the early disease, giving at least twenty to thirty injections each of the arsenicals and heavy metal, preferably bismuth compounds.¹²

If cardiovascular syphilis is already present, the procedure to be followed will depend on the heart condition found. If the patient shows exertional dyspnea, edema or cyanosis, rest in bed for a month or more is desirable. If the presence of cardiac breakdown is revealed, digitalis in the form of the leaf, 0.2 Gm. a day, may be indicated. Patients with edema may be benefited by the diuretic¹³ action of the heavy metal salts. Certain patients will be unable to stand any arsenical and the physician must depend on mercury, bismuth and potassium iodide. The data, however, show that a large proportion of patients, if they are handled with care, will be much benefited by the cautious use of small doses of an arsenical, especially neoarsphenamine.

After a preliminary course of either mercury or bismuth compounds to prevent a "therapeutic paradox," the patient may then be started, very cautiously, on a dose of neoarsphenamine, 0.05 or 0.1 Gm., gradually worked up to a maximum dose of from 0.2 to 0.45 Gm., depending on body weight, a course of twelve treatments being given. The dose of 0.3 Gm. should rarely, if ever, be exceeded except in patients with uncomplicated syphilitic aortitis. It has been pointed out that better results were noted in cases of uncomplicated syphilitic aortitis when small rather than large doses of the arsenicals were used. In all cases any reaction, even a gastric upset, must be avoided in order to eliminate strain on the already overburdened myocardium. An arsenical for intramuscular use may well be employed in such cases. Between the succeeding courses of neoarsphenamine, an oil suspension of bismuth, e. g., sodium potassium bismuth tartrate 0.1 Gm. or an insoluble salt such as bismuth salicylate 0.1 Gm., may be used weekly for twelve doses. If the patient stands the therapy well, alternating courses of an arsenical drug or of a heavy metal should be kept up for at least two years, though our cases of uncomplicated syphilitic aortitis progressing to graver forms indicate that vigorous treatment must be avoided. Naturally, every case of cardiovascular syphilis should be kept under close

11. Wile, U. J.: Treatment of Syphilitic Liver and Heart, *Am. J. M. Sc.* 164: 415-428 (Sept.) 1922; Principles Underlying Treatment of Cardiovascular Syphilis, *Am. Heart J.* 6: 157-160 (Oct.) 1930.

12. Stokes, J. H.; Cole, H. N.; Moore, J. E.; O'Leary, P. A.; Wile, U. J.; Parran, Thomas, Jr.; Vonderlehr, R. A., and Usilton, Lida J.: Standard Treatment Procedure in Early Syphilis, *Ven. Dis. Inform.* 15: 149 (April) 1934; *J. A. M. A.* 102: 1267-1272 (April 21) 1934.

13. Sollmann, Torald, and others: Comparative Diuretic Response to Clinical Injections of Various Mercurials, to be published.

observation, treated according to symptomatology, and, if possible, a certain amount of treatment be given throughout life.

SUMMARY

1. It has been estimated that in the United States annually one-half million people with late syphilis seek treatment for the first time, about 50,000 of whom have a detectable cardiovascular syphilis.

2. Among 6,253 patients admitted with latent or late syphilis (principally central nervous system or cardiovascular) who were treated for six months or longer, there were 9.9 per cent who on admission manifested or subsequently developed cardiovascular syphilis. There were 4.9 per cent of cases of uncomplicated syphilitic aortitis, 4.1 per cent of aortic regurgitation, 1.2 per cent of aneurysm and 0.8 per cent of myocarditis.

3. Proportionately three times as many Negroes as white patients were affected, and among the males four times as many.

4. In 7 per cent of the patients with cardiovascular syphilis, involvement occurred within five years after the infection, but the largest group in ten to twenty years or twenty to thirty years after infection.

5. The blood serologic reaction was positive in 79 per cent of the cases. Concomitant syphilis of the central nervous system was found frequently. Among those patients on whom a spinal fluid examination was done, definite abnormalities were detected in 56 per cent.

6. In 3,641 cases in which treatment was administered in the early stages of syphilis, less than 1 per cent developed cardiovascular involvement. However, since 71 per cent have been followed for less than three years, there is a strong probability that in certain of these cases cardiovascular syphilis will be detected as the observation period is extended. Of 935 patients followed for from three to ten years fifteen, or 1.6 per cent, developed cardiovascular syphilis, and among 105 patients followed for from ten to twenty years, seven, or 6.7 per cent, developed cardiovascular syphilis.

7. In our series of patients followed for from three to twenty years, none developed aortic regurgitation or aneurysm provided they had been adequately and regularly treated during the early stages of syphilis.

8. Sixty-nine per cent of the entire Cooperative Clinical Group material had never had any specific treatment previous to detection of the cardiovascular syphilis. This was true of 62 per cent of the patients with uncomplicated syphilitic aortitis, 76 per cent of those with aortic regurgitation, and 84 per cent of those with aneurysms.

9. In determining the effectiveness of therapy after the detection of cardiovascular syphilis, the cases studied were limited to those under observation and treatment for one year or more. When thirteen or more injections of an arsenical with twenty or more injections of a heavy metal were given after the detection of the cardiovascular involvement, it appeared that not only was there some symptomatic relief of cardiovascular symptoms but also that there was a prolongation of life, the extent of which was dependent on the severity of cardiovascular involvement when anti-syphilitic treatment was begun.

10. The best treatment of cardiovascular syphilis is prophylaxis, i. e., at least twenty to thirty injections of an arsenical with interim heavy metal (bismuth) administered under the continuous system while the patient is in the early stages of syphilis.¹² Once the

patient has cardiovascular syphilis, in addition to symptomatic care, preferable treatment seems to consist of a preliminary course of intramuscular bismuth injections and potassium iodide by mouth, followed by the cautious use of arsenicals. Shock must be avoided at all times. If the therapy is well tolerated, alternating courses of the heavy metals and the arsenicals may be cautiously continued.

HYPERNEPHROMA ASSOCIATED WITH PREGNANCY

REPORT OF CASE

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The treatment of malignant tumors complicated by pregnancy is always a major therapeutic problem, especially if the patient refuses interruption of the pregnancy. The consensus of medical opinion strongly advocates the early sacrifice of the fetus when radiation therapy to either the pelvis or the abdomen is indicated, for experience has shown that therapeutic irradiation of the abdomen during gestation is extremely prejudicial to the future health of the fetus.

The apparent rarity of hypernephroma in gravid women is not remarkable if one bears in mind that this tumor usually occurs beyond the reproductive age. In our laboratory we do not designate as hypernephroma those tumors showing sex symptoms and invading the kidney from without, though these have frequently in the past been diagnosed both clinically and pathologically as hypernephromas. The new interpretation disagrees with Grawitz's original conception that tumors of the latter growth arise from cortical adrenal rests but interprets them as originating from the epithelium of the renal tubules. It is not within the scope of this report to elaborate on the origin and histology of hypernephroma. Suffice to say that it is characterized clinically by pain, visible or palpable mass in the flank, hematuria, loss of weight and symptoms referable to metastatic extension.

Success in the treatment of such a malignant growth, with or without the presence of an intra-uterine pregnancy, is dependant wholly on early diagnosis, followed by the immediate institution of proper therapy. Differential renal function tests with complete pyelographic studies as a rule are of prime importance in the diagnosis of this tumor even before the process is sufficiently advanced to produce pain or loss of weight.

The following report concerns the case of a white woman with a demonstrated hypernephroma, an intra-uterine pregnancy, and eclampsia superimposed on a chronic nephritis.

REPORT OF CASE

History.—E. G., a white woman, aged 40, weighing 220 pounds (100 Kg.), complained of "passing blood in the urine for six months." The family history was essentially negative. She was operated on five years ago for "gallbladder trouble." She had been married for twenty-four years and had four normal pregnancies, the last occurring fifteen years ago.

From the Gynecological Department of the Johns Hopkins Hospital and the Johns Hopkins University.
We are indebted to Dr. Guy L. Hunner and Dr. Charles D. Smith for assistance and to Miss Beverly Walton for the illustrations.
Owing to lack of space this article is abbreviated in *THE JOURNAL* by omission of the illustrations. The complete article appears in the authors' reprints.

Present Illness.—During the past six months she had experienced several attacks of painless hematuria, the urine being described as "bright red." Cystoscopic treatments resulted in the disappearance of the gross hematuria for a period of five months. However, two weeks prior to her admission to this service she had two attacks, each lasting one day, with a gradual clearing of the urine over a two to three day period. One week prior to her admission she experienced several attacks of sharp, nonradiating pain in the left flank, these being of about fifteen minutes' duration. She had lost 20 pounds (9 Kg.) during the present illness.

Examination.—The patient was large, obese and of foreign descent and did not appear ill. The temperature was 99.8 F.; blood pressure 145 systolic, 75 diastolic; hemoglobin 70 per cent. A catheterized specimen of urine contained innumerable red blood cells, with an occasional cast.

The abdomen was thick walled, and no tenderness was demonstrated on deep pressure over the kidneys. A vague mass was outlined in the left flank. The pelvic examination revealed the uterus enlarged to the size of about a three months' pregnancy, which agreed with her menstrual history. The patient admitted that she might be pregnant, though she thought this unlikely in view of the fifteen year period of sterility.

The two hour phenolsulfonphthalein kidney excretion test showed an output of 68 per cent. On cystoscopic examination the urethra and bladder were normal in appearance. A plain plate of the abdomen revealed a large irregular shadow replacing the left kidney; subsequent retrograde and secretory pyelograms showed a large irregular kidney on the left side, with a definitely distorted pelvis. The kidney function test on the left side was 10 per cent in thirty minutes. The right kidney was normal in outline, the pelvis was not distorted and the function was excellent.

Treatment.—Since the diagnosis of a hypernephroma involving the left kidney seemed quite certain, the patient was approached with an outline of the expected course of therapy, which included termination of the pregnancy. In spite of a full explanation of her condition and of the dangers to both the mother and the fetus, the patient emphatically refused any form of therapy that would not include every precaution to protect the life of the fetus. Five days after her admission to the service, deep radiation therapy to the left kidney region was instituted and within a period of thirty-five days a total of 6,600 roentgens was given.

The patient was then permitted to go home, with instructions to return at the end of six weeks. During the interim she was free from hematuria until the day before her readmission, at which time she experienced pain in the left flank followed by gross hematuria. On examination the mass, which had been easily outlined in the left flank on her previous admission, could not be palpated. The uterus was enlarged to the size of a six to seven months' pregnancy and fetal movements were present. Moderate pitting edema of the ankles had appeared. An ophthalmologic examination revealed an early retinal arteriosclerosis of the left eye. The blood pressure was now 160/100, the hemoglobin 70 per cent, the nonprotein nitrogen 26 mg. per hundred cubic centimeters. Retrograde and secretory pyelograms revealed no change in the normal right kidney. However, on the left side there was a marked change, the kidney shadow having decreased to nearly one-half the original size and being as a matter of fact smaller than the normal kidney on the opposite side (fig. 1).

Operation.—Under tribrom-ethanol-ether anesthesia the left kidney was removed through the transperitoneal approach. Some difficulty was encountered because of the obesity of the patient and the presence of the pregnant uterus. The kidney itself was remarkably free of adhesions and, after the pedicle was controlled, it was easily removed. The wound was closed in layers and supported with silver wire. The renal fossa was drained through a lumbar stab wound.

Postoperative Course.—The patient was in good condition on her return to the ward. The blood pressure remained around 150/110 during the entire time. The pitting edema of the ankles disappeared. The wound healed by first intention and the silver wires were removed on the thirteenth day. On the fifteenth day the kidney function test was 55 per cent for two hours. No evidence of metastasis was found following roentgenographic studies on the nineteenth day. Though we were

anxious to keep the patient under close surveillance until delivery, she was impatient to return home, so that she was discharged and referred to Dr. J. J. Jenkin and Dr. C. J. Carter of Farmington, W. Va., on the twenty-second day after operation.

The course at home was uneventful until the evening of the forty-eighth postoperative day, when there occurred a sudden attack of severe headache, closely followed by severe convulsions, and immediate surgical intervention was thought indicated. Under spinal anesthesia Dr. Carter successfully performed a classic cesarean section and delivered a normal appearing premature child of 1,540 Gm. The measurements of the child were normal in all respects. The mother was discharged as well on the fourteenth day. The child was kept in the incubator for the first two weeks and when discharged at the end of twenty-eight days weighed 2,155 Gm. To date (nine months) the baby has been in excellent health and has displayed no evidence of injury resulting from the roentgen therapy. Microcephaly, feeble-mindedness and skeletal defects are stressed in the literature; naturally feeble-mindedness will not be ruled out for some years. The mother has never fully regained her strength, though there is no evidence of recurrence or metastasis.

COMMENT

There are three special points of interest in this case, viz., the preoperative preparation, the operative approach and the effect of the irradiation on the child.

Waters, Lewis and Frontz¹ and Wharton² have recently advocated preoperative irradiation in tumors of the kidney and have presented a small series of patients showing that the size of the tumor mass is reduced and that the resultant postirradiation cellular destruction decreases the likelihood of recurrence. Histologic study of the removed tumor showed marked cellular changes with large areas of hyalinization and infarction; the entire picture was not that usually associated with the malignant hypernephroma, so that we feel justified in saying that the irradiation did actually alter the degree of malignancy. Under the supervision of Dr. C. D. Smith of the x-ray department, the following roentgen therapy was given within a period of thirty-five days: Three portals of entry were employed, each measuring 15 by 15 cm. The central ray was directed toward the left kidney at the level of the costal margin in the midaxillary line. Three fields, anterior, posterior and lateral, were used. One field was treated each day to deliver 220 roentgens (as measured at the skin) per treatment. Each field received ten treatments. The other factors were 190 peak kilovolts, 20 milliamperes, 50 cm. target-skin distance, and a filter of 2 mm. of copper plus 1 mm. of aluminum.

The cumulative effect at the central point of the tumor can be estimated at about 3,000 roentgens, or from 40 to 50 per cent of the skin dose. The inner curve as shown in figure 2 is 20 cm. from the skin and at this level the intensity is approximately 10 per cent. The outer (deepest) curve represents the deepest point of effective radiation.

In addition to the roentgen therapy, six pyelograms were taken in the latter part of the third month of pregnancy; two pyelograms were taken during the sixth month of pregnancy. At each exposure the patient received 240 milliamperes seconds at 30 inches target-film distance. The patient therefore, in the period between the latter part of the third month and the latter part of the sixth month of pregnancy, received 6,600 roentgens of high voltage therapy to the upper part of

1. Waters, C. A.; Lewis, L. G., and Frontz, W. A.: Radiation Therapy of Renal Cortical Neoplasms, *South. M. J.* 27: 290 (April) 1934.

2. Wharton, L. R.: Preoperative Irradiation of Massive Tumors of the Kidney, *Arch. Surg.* 30: 35 (Jan.) 1935.

the abdomen and 1,920 milliamperes seconds over the abdomen in the course of examination. No attempt is made to estimate the amount of radiation that reached the fetus and we believe that the radiation given in the manner described had no detrimental effect on the child.

Little or no change in the size of the left kidney mass was noticeable at the end of the radiation course, and the patient was sent home for a six weeks' rest. On her return at the end of the six weeks' period the changes illustrated in figure 1 were noted by both manual and pyelographic studies.

Because of the patient's obesity, the suspected malignancy of the tumor and the presence of a seven months intra-uterine pregnancy, the transperitoneal approach was selected. This type of tumor is made up of tissue notorious for its friability and for the ease with which it recurs following removal. There is also a marked tendency for such growths to extend into the renal pelvis and ureter and into the renal vein (fig. 3), as it did in this case. It was evident that the lumbar approach would necessitate undue and dangerous tension on the tumor mass during the ligation and severing of the pedicle. With the transperitoneal approach the pedicle was readily exposed and ligated without the tumor proper being touched. A large tumor mass could be outlined in the renal vein and extreme care was exercised so as not to break off any of the tumor thrombus. The period of time between the irradiation of the tumor and the operation was adequate, as the tumor mass had seemingly reached its maximum point of regression and no unusual bleeding or adhesions were encountered. Thus we feel that the decrease in the magnitude of the tumor and the apparent alteration of malignancy following radiation, with the ensuing facilitation of removal of the tumor mass, more than counterbalanced the disadvantage accruing from the increased growth of the uterus during the interim of treatment with possible hindrance of the operative procedure.

Miller, Corscaden and Harrar, who have recently reviewed the effects of radiation on the fetus, have concluded that irradiation during pregnancy for therapeutic purposes should be restricted to very clear and urgent indications; that it seems advisable to interrupt any pregnancy which has been subjected to therapeutic radiation, as it is generally admitted that serious radiation effects on the offspring will result in a high percentage of the cases. These effects are proportional to the amount of radiation and are more serious in early pregnancy, though the fetus may be seriously injured at any stage of development.

In reviewing the cases reported in the literature, we have been impressed by the lack of actual therapeutic data relative to the serious results of radiation on the health of the fetus in utero. We believe that this failure to include the technic of radiation employed limits the value of such reports. Thus with so few actual facts at hand we do not know the degree of risk of irradiating during pregnancy, if proper measures are taken to safeguard the fetus from the direct rays.

CONCLUSIONS

1. In the treatment of kidney tumors a diagnosis should be made as early as possible and proper therapy immediately instituted. Recognition of renal abnormality associated with neoplastic involvement is facilitated by complete urologic study. Obviously, early surgical

intervention offers the best prognosis, but when the clinical and pyelographic examinations reveal a more extensive tumor growth, preoperative irradiation should be resorted to. When used alone, the value of roentgen therapy is questionable.

2. The presence of hypernephroma in association with an intra-uterine pregnancy is exceedingly rare, but if the proper line of therapy is followed one is probably justified in permitting a continuation of the pregnancy.

3. In view of the notorious friability and transplantability of this type of tumor, the transperitoneal approach is indicated. By this method the pedicle is readily isolated and ligated, without tension or pressure on the tumor mass.

4. Because of the lack of complete data, there is no convincing evidence to warrant the routine interruption of pregnancy during therapeutic irradiation, unless the rays are placed directly over the fetus.

523 West Sixth Street.

"PILOT ERROR" AND OXYGEN WANT

WITH A DESCRIPTION OF A NEW
OXYGEN FACE TENT

ALVAN L. BARACH, M.D.

NEW YORK

Although the number of accidents in commercial airplane travel has decreased since 1929, passenger fatalities have shown a marked rise. This is because more passengers are carried per airplane flight and therefore each major accident kills more people. Thus, while equaling their low record for accidents in 1936, the air lines made a new high record for deaths with a total of sixty-one, of which fifty-four were passengers. The cause of these accidents has been subjected to careful investigations both by the companies themselves and by governmental agencies. It has been said that pilot error enters into 90 per cent of all accidents, and in the most recent tabulation of the Department of Commerce this was considered the primary cause of sixteen out of twenty-seven accidents. The safety of the flying public would appear to be unduly dependent on a varying human personality if the analysis of the situation is correct and if no remedy for the situation can be found.

My evidence will be presented under the following on which the following conclusions may be reached:

1. Oxygen want is at times a factor in pilot error.
2. This factor (anoxia) is susceptible of immediate practicable remedy.
3. Compulsory oxygen inhalation should be adopted by commercial companies for pilots navigating at from 10,000 to 12,000 feet or over.
4. A comfortable, economical and efficient method for administering oxygen is now available; namely, an oxygen face tent originally developed for the treatment of anoxemia occurring in clinical disease.

My evidence will be presented under the following headings:

1. Oxygen want is capable of producing mental impairment and certain physiologic alterations at altitudes at which transcontinental commercial flying now takes place.

3. Miller, J. R.; Corscaden, J. A., and Harrar, J. A.: The Effects of Radiation on the Human Offspring. *Am. J. Obst. & Gynec.* 31: 518 (March) 1936. (Excellent bibliography.)

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

2. These disturbances in function of the human organism, induced by a reduced tension of oxygen in the tissues, are aggravated by certain forms of fatigue neurosis.

3. Pilots are apt to develop a characteristic form of fatigue psychoneurosis called aeroneurosis.

4. The combined effect of slight impairment of mental functioning induced by moderate anoxia and overt or latent aeroneurosis may become an influential factor in pilot error.

5. Safety in airplane travel may be increased by a recognition of these factors and a prompt application of suitable methods of preventing them.

The illness that develops at high altitudes, "mountain sickness" or "seroche," has long been known to be due to oxygen want. Many studies have been made on the physiologic and psychologic changes induced by exposure to reduced oxygen pressures at high altitudes and in chambers in which the pressure or concentration of oxygen has been artificially lowered.¹ The nature and severity of the symptoms produced at high altitudes are shown in the accompanying table, which has been condensed from that of Peters and Van Slyke.²

The more marked effects of oxygen want both mentally and physically have been studied at altitudes in the neighborhood of 15,000 feet. For the present purpose, however, it is important to point out that definite changes have been observed at altitudes of from 10,000 to 12,000 feet, an elevation frequently used in transcontinental flying. Thus tactual sensitivity was found decreased at 8,700 feet,³ increase in hand tremors at 8,400 feet,⁴ a decrease in reflex irritability at 8,400 feet,³ a diminution in performance in ergographic tests following rapid ascents from 9,500 to 12,000 feet,⁵ the onset of fatigue at 9,200 feet⁶ and impairment of neuromuscular efficiency at 12,000 feet.⁶

Of all the disturbances in the senses provoked by oxygen want, impairment in vision is the earliest to manifest itself. McComas⁷ reports that studies made by eye specialists of convergence and accommodation in thirty-five subjects during rebreathing tests revealed considerable loss of strength in the muscles of the eye. It was noted that at heights between 10,000 and 15,000 feet the subjects with slight convergence would see double. Experiments on aviators in the United States Air Force during rebreathing tests showed that diminished oxygen supply exaggerated to a marked degree any existing eye defect and unmasked a preexisting eye condition which would otherwise have escaped detection. In crash reports of aviators, accidents have been thought to be caused by such eye defects.⁸ Johnson

and Paschal⁹ believe that the disturbances attributed to vision impairment are more probably attentional than sensory. They have noted a depression of vision manifested not so much in the blurring of outlines as in a general darkening of the visual field and an intermittent cessation of all visual experiences, including that of darkness itself. Whatever the interpretation of the origin of the failing vision is, the importance of this sense in finding a landing needs no comment. Furthermore, the fact that a pilot has once been able to fly at 20,000 feet without conspicuous symptoms of anoxemia does not mean that he is a safe flier without oxygen at 10,000 feet. In fact, high flying appears to be followed by incapacity to tolerate even such moderate altitudes as 10,000 feet, and such fliers find their "ceiling" getting progressively lower.¹⁰ The importance of protect-

*Effects on Resting Normal Subjects of Acute Anoxia of Varying Intensity**

Degree of Anoxia	Oxygen Pressure of Inspired Air		Corresponding Altitude, Feet	Saturation of Arterial Blood with Oxygen	Symptoms
	Per Cent of an Atmosphere	Mm. Hg			
First degree: first obvious signs	10-12	120-90	8,000 to 16,000	89-85	Impaired mental concentration; muscular coordination disturbed; accelerated pulse and respiration
Second degree: precoma or post-coma; encountered either before unconsciousness or after recovery from short period of it	14-9	105-70	12,000 to 24,000	87-74	Judgment faulty; typical of alcoholic intoxication; hilarity or pugnacity; instability; muscular effort causes quick fatigue and may injure heart
Third degree: coma	10-6	70-45	24,000 to 35,000	74-33	Subject becomes unconscious; if in physical condition, coma is cerebral "with rigid, glassy eyed" unconsciousness almost instantly terminated by oxygen inhalation; if less fit, cardiac syncope occurs before cerebral; respiration reduced to gasps and stops; 6-8 minutes later heart stops

* Condensed from "Quantitative Clinical Chemistry" by J. P. Peters and D. D. Van Slyke, Baltimore, Williams & Wilkins Company, 1935, p. 588.

ing these fliers from premature loss of their usefulness by providing them with oxygen inhalation would appear a reasonable program in the light of these facts.

It must be admitted that the short duration of most psychologic tests of oxygen want limits somewhat the knowledge acquired from them. The clinical descriptions of mountain sickness are sufficiently abundant to provide incontrovertible evidence of the impairment in mental functioning at the high altitudes used in transcontinental aviation. Thus Heber,¹¹ in discussing the symptoms of the average European at Ladak Kashmir (11,500 feet), says: "The feeling of fitness on arrival soon gives way to a terrible weariness and restlessness, especially after a short day of mental work. The mental

1. Barcroft, Joseph: Anoxemia, *Lancet* 2:485 (Sept. 4) 1920; Anoxemia, *Encyclopedia Britannica* 2:7, 1929. Haldane, J. S.: Respiration, ed. 2, New Haven, Conn., Yale University Press, 1935. Bert, P.: La pression barométrique: Recherches de physiologie expérimentelle, Paris, Masson et Cie, 1878. Mosso, A.: Life of Man on the High Alps, translated from ed. 2 by E. L. Kiesow, *Gas Respirazione Periodica*, London, T. F. Unwin, 1878. Schneider, E. C.: A Comparison of Three Types of Anoxemia, *Mil. Surg.* 54:328 (March) 1924; Respiration at High Altitudes, *Yale J. Biol. & Med.* 4:537 (March) 1932. McFarland, R. A.: The Psychological Effects of Oxygen Deprivation (Anoxemia) on Human Behavior, *Columbia Univ. Arch. Psychol.* 145:135, 1932.

2. Peters, J. P., and Van Slyke, D. D.: *Quantitative Clinical Chemistry*, Baltimore, Williams & Wilkins Company 1:588, 1935.

3. Loewy, A., and Wittkower, E.: Weitere Untersuchungen zur Physiologie des Höhenklimas, *Arch. f. d. ges. Physiol.* 233:622-644, 1933.

4. Stern, Erich: Ueber die Wirkung künstlicher Sauerstoffatmung im Hochgebirge, *Klin. Wehnschr.* 4:1009 (May 21) 1925.

5. Loewy, A.: *Physiologie des Höhenklimas*, Berlin, Julius Springer, 1932.

6. McFarland, R.: Psychophysiological Studies at High Altitudes in the Andes, *J. Comp. Psychol.* 23:244, 1937.

7. McComas, H. C.: Oxygen and Deficiency, Aviator, 1922.

8. U. S. War Department Air Service Medical Manual, Washington, D. C., 1918.

9. Johnson, H. M., and Paschal, F. C.: Psychological Effects of Deprivation of Oxygen, *Psychobiol.* 2:193 (June) 1920.

10. Corbett, C. D. H., and Bazett, H. C.: A Study of the Reaction of Pilots and Observers to Diminished Oxygen Pressure: The Medical Problem of Flying, British Privy Council, Medical Research Council, 1920, special report series, No. 53, pp. 18-69. Flack, M.: Test for Flying Efficiency and Flying Strain, *ibid.*, p. 93-140. Birley, J. L.: Report on the Medical Aspect of High Flying, *ibid.*, pp. 5-9.

11. Heber, A. R.: Some Effects of Altitude on the Human Body, *Lancet* 1:1148 (May 28) 1921.

deterioration is not as serious, however, as the change in temperament and all subjective functions. It is astonishing how the most decisive of men will slowly and insidiously lose the power of decision and become unwilling to bear responsibility." Barcroft¹² noted the increase in fatigability at Cerro de Pasco (14,200 feet) and the inevitable slowness and clumsiness at all work. In the clock test it took him twice as long to read the reverse face of the clock as it did at sea level. He

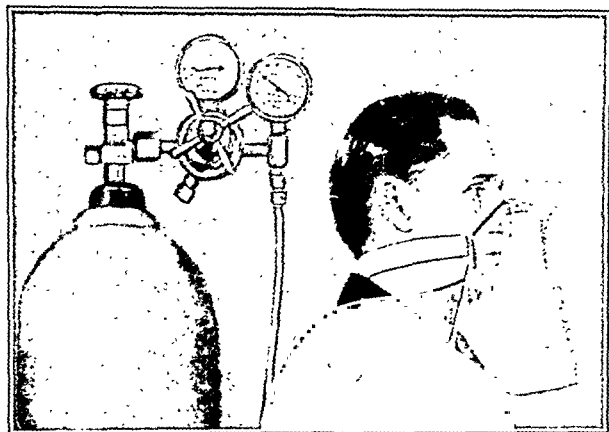


Fig. 1.—Large oxygen face tent.

remarked that any prolonged mental effort usually involved a degree of fatigue which necessitated a trip to the coast to prevent a "nervous breakdown."

Chemical reactions in the body due to oxygen deficiency include a lowered saturation of the arterial blood with oxygen, a decreased content of carbon dioxide, increased urinary acidity and an increase in nitrogen excretion, especially ammonia, in the urine. Loewy¹³ states that these changes may be observed in man at rest at altitudes as low as 2,450 meters, approximately 8,000 feet, and are more pronounced at altitudes of from 10,000 to 12,000 feet.

Several hours of moderate anoxia such as that produced by an altitude of from 10,000 to 12,000 feet, which may result in an arterial oxygen saturation of from 88 to 87 per cent, not only produces malaise and other symptoms of oxygen want, but these symptoms are apt to persist for some hours after return to normal oxygen conditions, as pointed out by Peters and Van Slyke,² presumably because of cumulative changes that take place in the cells before acclimatization can be accomplished. Recognition of this fact is of importance, since an aviator may be exposed to a reduced oxygen pressure at a certain period in a flight and the effects manifest themselves three or four hours later when traveling at low altitudes. Furthermore, in some individuals, acclimatization may not be attained for months or years; irritability and various sorts of malaise may be much more marked than at sea level, and prolonged residence at altitudes over 10,000 feet appears frequently to lead to premature cardiac failure.² I do not wish to emphasize the more severe symptoms that take place at altitudes of from 12,000 to 24,000 feet in which conspicuous interference with reason, judgment,

memory and control take place along with more pronounced cardiorespiratory symptoms ending in coma and collapse (third stage shown in the table) but to direct attention to the fact that mental impairment such as difficulty in concentrating and increased effort in attempting to concentrate occur at altitudes of from 10,000 to 12,000 feet to a varying degree depending on the individual. According to Barcroft,¹ the brain is the most vulnerable organ in altitude sickness. Although no opportunity has been had to investigate the pathologic effects of moderate degrees of oxygen want on the human brain, it is of interest to remember that cases of fatal anoxia, chiefly those due to carbon monoxide poisoning, have shown cerebral edema as their outstanding lesion, which may be attributable to the increase in capillary permeability observed experimentally by Landis.¹⁴

Since definite alterations in mental and physiologic behavior have been observed in normal individuals exposed to altitudes used in commercial flying, it is of special importance to realize that nervous states markedly augment the disturbing influence of oxygen want. During the past four years McFarland and I¹⁵ have made studies, psychologic as well as physiologic, on the effects of breathing varying oxygen mixtures on normal individuals, on subjects under the influence of alcohol and on patients with psychoneuroses. The similarity between drunkenness and acute oxygen want was apparent in many tested subjects. Furthermore, there was some evidence, both in the responses to psychologic tests and in the blood level of alcohol and lactic acid, that inhalation of high oxygen mixtures favorably influenced alcoholic intoxication in certain individuals.^{15a} The work of Palthe¹⁶ was only partially confirmed in this respect. That oxygen want conspicuously increased the symptoms of alcoholic intoxication was demonstrated in animals and in human subjects.^{15b}

Especially pertinent to our discussion are the results of breathing from 12 to 10 per cent oxygen mixtures in a group of patients suffering from psychoneuroses characterized by fatigue, neurasthenia and psychasthenia, when compared to normal subjects. Whereas very few of the control subjects showed more than impairment in judgment, memory and emotional control, and physiologic elevation of the pulse and blood pressure, a large percentage of the patients collapsed or showed marked deterioration in mental function.^{15c} Furthermore, undue fatigue such as that induced by keeping a subject



Fig. 2.—Small oxygen face tent.

12. Barcroft, Joseph: *The Respiratory Function of the Blood*. I. Lessons from High Altitudes, Cambridge University Press 1925; Observations on the Effects of High Altitudes on the Physiological Processes of the Human Body Carried Out in the Peruvian Andes, Chiefly at Cerro de Pasco, Phil. Tr. Roy. Soc. London, series 211: 389; 351-489, 1923.

13. Loewy, A.: Neue Untersuchungen über die physiologischen Wirkungen des Höhenklimas, *Ergeb. d. Physiol.* 24: 216, 1925.

14. Landis, E. M.: Micro-Injection Studies of Capillary Permeability: III. The Effect of Lack of Oxygen on the Permeability of the Capillary Wall to Fluid and to the Plasma Proteins, *Am. J. Physiol.* 82: 525 (Jan.) 1928.

15. (a) McFarland, R. A., and Barach, A. L.: Relationship Between Alcoholic Intoxication and Anoxemia, *Am. J. M. Sc.* 192: 186 (Aug.) 1936. (b) Barach, A. L.: Action of Oxygen in Counteracting Alcoholic Intoxication, *Am. J. Physiol.* 107: 610 (March) 1934. (c) McFarland, R. A., and Barach, A. L.: The Response of Psychoneuroses to Variations in Oxygen Tension, *Am. J. Psychiat.*, to be published.

16. Palthe, Van W.: Action of Oxygen on Alcohol Poisoning, *Deutsche Ztschr. f. Nervenh.* 92: 79, 1926.

awake the night before the test resulted in responses to low oxygen similar to the patient with neurotic fatigue. Although the degree of oxygen want induced in these studies was definitely greater than that ordinarily employed in transcontinental aviation, the results obtained clearly revealed an increasing inability of the individual suffering from fatigue psychoneurosis to handle oxygen want as compared to the normal person.

The argument leads now to the fact that a characteristic form of psychoneurosis develops among air pilots.

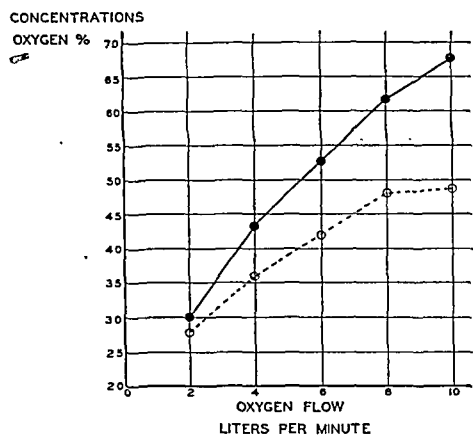


Fig. 3.—Oxygen concentrations in the large (solid line) and small (broken line) oxygen face tent at varying oxygen flows.

During the World War there was an enormous percentage of air pilots of all countries invalidated because of functional nervous disorders. Anderson,¹⁷ because these conditions developed as the result of flying, coined the term "aeroneurosis"; other authors referred to the syndrome under descriptive terms such as "aerosthenia" and "chronic fatigue."¹⁸ Armstrong¹⁹ defined aeroneurosis as a chronic functional nervous disorder occurring in aviators characterized by fatigue of the higher voluntary mental centers, insomnia, emotional instability, gastric distress, nervous irritability and increased motor activity. Although anoxemia is listed as a possible physical factor, the pathogenesis was regarded as essentially concerned with the profound and long continued emotional stresses encountered in this type of occupation. Armstrong (1936) concludes his study of American pilots as follows: "From a study of the functional nervous disorders occurring in 163 unselected airplane pilots over a period of three years, it is concluded that: Of the group studied, 11.04 per cent suffered from a special form of the psychoneuroses, which affect 3 per cent of those in the age group 22-29, 50 per cent of those in the age group 30-39, and 57 per cent of those in the age group 40-49."¹⁹

In the gassed soldiers in the war a neurosis developed described as a "disordered action of the heart." Barcroft, Hunt and Dufton²⁰ regarded this as due to chronic oxygen want and obtained definitely beneficial results by continuous oxygen administration in chambers. Haldane²¹ observed that patients returned from

the World War with a diagnosis of "soldier's heart" or "neurasthenia" suffered from rapid, shallow breathing, a sense of impending suffocation, general nervous irritability and shortness of breath on exertion. He suggested that military neurasthenia was a more lasting form of fatigue due to oxygen want. Schneider²² observed that "stale or fatigued pilots" were frequently rapid, shallow breathers and more sensitive to oxygen deprivation. The implication that anoxia may be concerned in the pathophysiology of neurosis is strengthened by the observations of Hess,²³ who believed that oxygen exchange between the alveolar air and the arterial blood is inhibited by vagus action, and by Kroetz,²⁴ who reported that the arterial oxygen saturation of neurotic patients showing vasomotor instability might suddenly fall from the normal level of 95 per cent or over to 85 per cent as a result of emotional stress. Both clinical and experimental results support a tentative hypothesis that repeated exposure to oxygen want at high altitudes may be a factor in the development of nervous disorders in pilots.²⁵

Since fatigue and psychoneurotic states augment the harmful effects of anoxia mentally as well as physically, and since these states are especially liable to develop in aviators, it seems reasonable to provide pilots with the only safeguard known to combat anoxemia; namely, continuous oxygen inhalation during flights at altitudes between 10,000 and 12,000 feet or higher.

I shall now describe a simple oxygen face tent which appears to have advantages over other forms of portable apparatus. A box mask enclosing the face and neck has been described by Campbell.²⁶ It consists of an aluminum or cardboard frame to which linen is attached. The latter may be moistened with water and the evaporation of this tends to cool the apparatus. A similar device has been developed by Taylor²⁷ except that oxygen and air are first passed through a refrigerating cabinet. A manufacturer²⁸ has advertised an

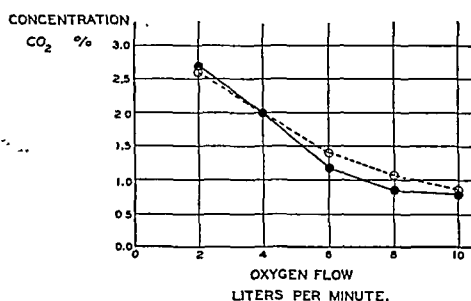


Fig. 4.—Oxygen (broken line) and carbon dioxide (solid line) concentrations in the oxygen face tent at varying oxygen flows.

inhaler which covers the nose and mouth. The oxygen face tents shown in the accompanying illustrations are made of light, transparent plastocoele. They fit over

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the bridge of the nose and may easily be molded to the conformation of the patient's face. They are attached to the head either by ear pieces or by an elastic band. Oxygen is admitted through perforated rubber tubing placed horizontally at the upper part of the mask. A shelf made of the same material extending downward from the top of the face allows oxygen to collect during expiration and tends to prevent leaks at the top of the mask; it also directs the patient's expired air downward and out of the tent and thus prevents warm air from being reflected directly backward on the patient's face. Provided 4 or more liters a minute of oxygen is continuously administered, additional cooling is generally not necessary. The oxygen is admitted dry without passing through a water bottle, since sufficient moisture remains within the tent from the patient's previously exhaled air to provide a comfortable relative humidity.

In figures 3 and 4 the oxygen and carbon dioxide concentrations in the inspired air at varying oxygen flows are shown for a small and a large face tent. It will be observed that the oxygen concentration in the small face tent was found to be 36 per cent at 4 liters a minute, 42 per cent at 6 liters and 47 per cent at 8 liters; in the large face tent the oxygen concentration was 43 per cent at 4 liters, 52 per cent at 6 liters and 62 per cent at 8 liters a minute. The increased volume in the larger tent allows for a greater storage of oxygen admitted from the tank during expiration. The carbon dioxide concentration in the inspired air is seen to be 2 per cent or under when 4 or more liters a minute is administered. In the treatment of anoxemia in clinical medicine this is the minimum flow at which a face tent should be used; at high altitudes 3 liters a minute may be employed, since slightly higher carbon dioxide concentrations may be advantageous under these circumstances. The foregoing measurements were obtained by placing a large tube in the oral pharynx with the mouth closed during administration of oxygen. Samples were taken during inspiration. Variations of approximately plus or minus 1.5 per cent were found, depending on the volume and character of the pulmonary ventilation. For clinical purposes the large face tent with an oxygen flow of from 6 to 8 liters a minute is generally desirable, since this provides an effective concentration of oxygen. When used to combat the anoxemia of high altitudes, from 3 to 4 liters a minute (with the small face tent) will produce a concentration of oxygen above 21 per cent in the inspired air at from 10,000 to 12,000 feet respectively, and from 6 to 8 liters a minute will provide an oxygen concentration approximately that of the atmosphere, or higher, at from 16,000 to 25,000 feet.²⁹ The concentration of oxygen required may be calculated readily by relating the altitude to the barometric pressure and then calculating the percentage of increase in oxygen concentration required to overcome the percentage of decrease in the barometric pressure from 760 mm. of mercury.

Since this communication is particularly concerned with oxygen inhalation for pilots operating in transcontinental flights between 10,000 and 12,000 feet, it is of value to compute the weight of the additional equipment necessary. A 110 cubic foot tank of oxygen contains 3,000 liters. At a flow of 4 liters a minute, which will provide an oxygen concentration slightly higher

than that of atmospheric air at 12,000 feet, a single tank will last twelve and one-half hours for one pilot or approximately six hours for two pilots. At a flow of 3 liters a minute, which would provide an oxygen concentration approximately that of the atmosphere, a single tank would provide two pilots with oxygen for more than eight hours. Higher oxygen concentrations would be provided by the larger, somewhat more cumbersome tent. The tank weighs 94 pounds (43 Kg.), the oxygen regulator, tubing and face tent 5 pounds (2,268 Gm.); the total increase in weight, therefore, is less than 100 pounds (45 Kg.). The cost of both the oxygen and the apparatus is nominal.

This oxygen face tent provides, in my experience, more comfort than a nasal or oropharyngeal catheter or nasal inhaler. It does not interfere with vision. It can be easily removed and reapplied, with an almost immediate building up of the oxygen concentration desired. The face tent, however, does not provide a cool, dry atmosphere, although it has been found comfortable for hospital patients. Its advantages are its simplicity, inexpensiveness, comfort and effectiveness. It is my belief that an apparatus of this kind is practicable for pilots. The oxygen released into the cabin of the pilot would not raise the oxygen concentration to an appreciable extent, since leaks under the doorway would prevent any undue accumulation of oxygen.

In a transcontinental airplane flight which I made at from 10,000 to 12,000 feet, a pilot who consulted me on a method of overcoming the sleepiness from which he suffered revealed the fact that he did not take oxygen and made the statement that he did not need it. It should be borne in mind that the effects of oxygen want are insidious and that overconfidence is as characteristic as it is in alcoholic intoxication. The responsibility for inhalation of oxygen should not, in my opinion, be left with the pilot but should be decided by the administrative department of the company. In this way the flying public would be more apt to be protected against the factor of pilot error due to oxygen want or previously experienced oxygen want. In addition, it is entirely possible that the aviator himself not only would function better because of oxygen inhalation but might be partially protected against the development of the psychoneurotic state known as "aeroneurosis," at least as far as it might be caused by repeated exposure to anoxemia.

SUMMARY

Oxygen want is capable of producing mental impairment and physiologic alterations at altitudes of from 10,000 to 12,000 feet, at which much transcontinental flying takes place at the present time. Fatigue and psychoneurotic states seriously aggravate the dangerous effects of oxygen want.

Pilots are apt to develop a characteristic form of psychoneurosis called "aeroneurosis" in which fatigue is a prominent symptom. The combined effect of impairment of mental functioning and overt or latent aeroneurosis may become an influential factor in pilot error. Safety in airplane travel may be increased by a recognition of these factors and by the adoption of compulsory oxygen inhalation for pilots flying at altitudes at or above 10,000 to 12,000 feet.

The simple oxygen face tent described is practicable, efficient and comfortable. It appears to be a suitable method of oxygen inhalation for pilots, as well as being applicable to the treatment of oxygen want in clinical disease.

893 Park Avenue.

29. More circulation of air in the face tent may be obtained by connecting a simple bunsen burner type of injector to the regulator, which then delivers approximately 75 per cent oxygen and 25 per cent nitrogen. The apparatus may be made locally or secured from the Oxygen Therapy Service Company, 247 East Fifty-Sixth Street, New York.

**Clinical Notes, Suggestions and
New Instruments**

**A TUBE FOR USE IN THE POSTOPERATIVE CARE
OF GASTRO-ENTEROSTOMY CASES**

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University of Pennsylvania School of Medicine
AND
ARTHUR J. RAWSON, M.E.
Associate in Medical Physics
PHILADELPHIA

Stimulated by a suggestion from Dr. I. S. Ravdin we have devised, for routine use during the first few days after gastric operations, a tube which makes possible alternate jejunal feeding as advised by Andresen¹ and aspiration of the stomach

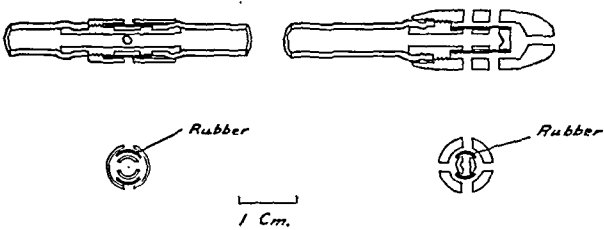


Fig. 1.—Longitudinal and transverse sections of the valves: Of the various patterns used, this is probably the best. The gastric or inlet valve on the left is approximately the diameter of the tube, in contrast to the larger outlet valve on the right. This enables the surgeon to locate the end of the tube more certainly. The actual dimensions of the valves are varied in relation to the size of the tube on which they are to be mounted.

contents as advocated by Wangensteen and Payne.² Our first experience in attempting to combine these two principles in one apparatus was in a case requiring at the same time a gastro-jejunoscopy and a gastrostomy. A double-lumened rubber tube³ was passed through the gastrostomy, one lumen for communication with the stomach, the other for communication with the jejunum. Though this procedure achieved its objectives it was, of course, unpractical since rarely are both operations required. Furthermore a double-lumened tube of sufficiently small size to pass through the nose could not have lumens large enough freely to transmit mucoid or bloody gastric contents. Therefore we have abandoned the use of a double-lumened tube and have devised two silver valves (fig. 1), which may be mounted on standard single-lumened tubes of size 12 to 16 F., as these will lie comfortably in the average nose. The proximal valve in the stomach allows fluid to enter but not to leave the tube. The distal valve in the jejunum 30 cm. beyond allows fluid to leave but not to enter the tube. The valves themselves may be made small enough to pass through the nose, but, because it is easier for the surgeon to find the end of the tube in the stomach by palpation if the distal valve is larger, we either attach a "duodenal bucket" to the end of the tube beyond the outlet valves or make the terminal valve of a large size. The tube may then be passed as follows:

The tube is swallowed before operation. A small catheter is passed in through the nose and out at the mouth. The proximal end of the tube is attached to the catheter and drawn in a

retrograde fashion back through the mouth and out at the nose, leaving the patient's mouth unencumbered. The gastro-enterostomy is performed as usual and on the completion of the anastomosis the tip of the tube is located by palpation and slipped through the stoma down into the jejunum till the proximal valve is felt leaving the stomach. The anesthetist then withdraws the tube till this valve lies well within the

Postoperative Fluid Balance

Fluids Given	Route	Character	Day of Operation	Days			
				1	2	3	4
By rectum (at operation).....		Water	1,000	0	0	0	
By intravenous injection.....		Blood	525	0	0	0	
By intravenous injection.....		0.9% NaCl	350	0	0	0	
By jejunum.....		Water	450	0	0	0	
By jejunum.....		5.0% dextrose	0	3,500	0	0	
By jejunum.....		5.0% dextrose					
By jejunum.....		0.9% NaCl	0	0	1,000	0	
By jejunum.....		0.9% NaCl	0	0	600	360	
By jejunum.....		Milk	0	0	600	360	
By jejunum.....		Gastrostomy mixture*	0	0	0	1,320	
Total.....			2,325	3,500	2,200	2,040	
Fluids Lost							
Vomitus.....			235	0	60	0	
Urine.....			600	780	575	350	
Gastric drainage.....			950	1,365	1,350	1,540	
Total.....			1,785	2,145	1,985	1,890	

* A liquid diet each 100 cc. of which contains 5 Gm. of protein, 9.5 Gm. of fat and 10.8 Gm. of carbohydrate, totaling 148.7 calories. This flowed somewhat too slowly, reducing the fluid intake for the third day.

stomach and applies adhesive tape to hold the tube in place. When the patient has been returned to the ward, siphon suction is applied to keep the stomach empty. About six hours later a connection is attached to a three-way stopcock joining the tube to the suction apparatus and water is given directly into the jejunum. Later, as occasion warrants, solutions of salt,

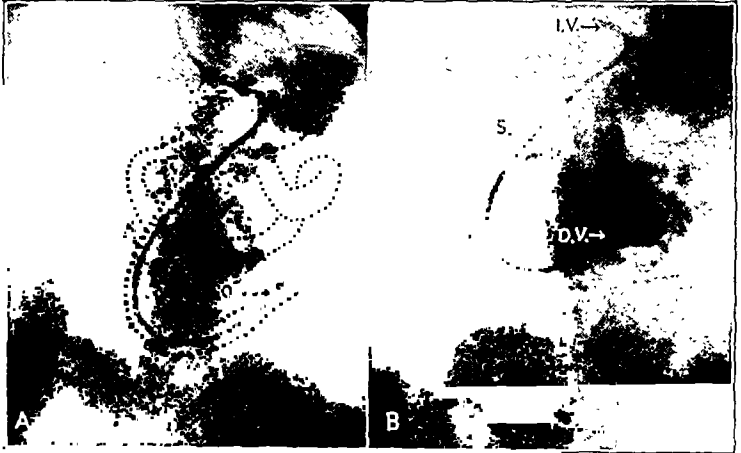


Fig. 2.—Tube in place: A, the position of the tube on the morning of the fourth day. The approximate position of the stomach and intestine is indicated by the dotted lines. I. V. indicates the inlet valve in the stomach, O. V., the outlet valve in the Jejunum, and S. the probable position of the gastrojejunostomy stoma. B, the appearance following the injection of 40 cc. of a thin barium sulfate suspension. Note that no barium has escaped into the stomach through I. V. and none has regurgitated back to the stomach from O. V.

dextrose, protein, vitamins or other nutritive preparations are similarly injected. Suction is continued throughout the intervals between feedings. The following case exemplifies the procedure:

D. N., a man, aged 55, had experienced recurrent attacks of duodenal ulcer symptoms from the age of 40. Five months before admission to the ward, evidence of beginning cicatricial stenosis of the pylorus first appeared, a condition that finally reached a point necessitating operation. After preparation in the medical wards he was transferred to the service of Dr. E. L. Eliason. Prior to operation the tube was passed as

From the Gastro-Intestinal Section of the Medical Clinic and the Johnson Foundation of Medical Physics, Hospital of the University of Pennsylvania.
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described. Under ether anesthesia an anticollic posterior gastro-jejunosomy was performed. The end of the tube was placed in the jejunum, and the patient was returned to the ward. The fluid balance of the first four days is summarized in the accompanying table. More fluid could have been given had it seemed necessary, as the volume introduced was not limited by the occurrence of symptoms.

On the fourth postoperative day two roentgenograms were made, the second of which was taken after the injection of 40 cc. of a thin barium sulfate suspension (fig. 2). It is apparent that the barium neither leaked into the stomach through the upper valve nor regurgitated into the stomach from the jejunum, though immediately after operation regurgitation probably occurred repeatedly, judging by the character of the drainage flow. The tube was then withdrawn without resistance.

It is unlikely that such a tube is detrimental to the suture line. In one patient in whom an 18 F. tube traversed the stoma for the thirteen days between the making of a gastro-enterostomy and death, the necropsy revealed no trace of pressure necrosis or inflammation of the mucous membrane. This case is important in that the cachexia of the patient was extreme. The operation was necessitated by failure of gastric emptying over a period of nearly a month during which time nutrition was maintained almost exclusively by parenteral routes. The patient was desperately ill much of this time from the effects of ulcerative colitis and a fecal fistula following a previous partial colectomy, so that were the presence of a tube likely to jeopardize healing it should have been apparent in this instance.

We feel therefore that the use of a tube with valves for the filling of the jejunum and the emptying of the stomach is both a practical and a helpful measure in the postoperative care of patients in whom an anastomosis between the stomach and the intestine has been formed.

133 South Thirty-Sixth Street.

A COMBINATION RESUSCITATOR AND INCUBATOR FOR NEW-BORN INFANTS

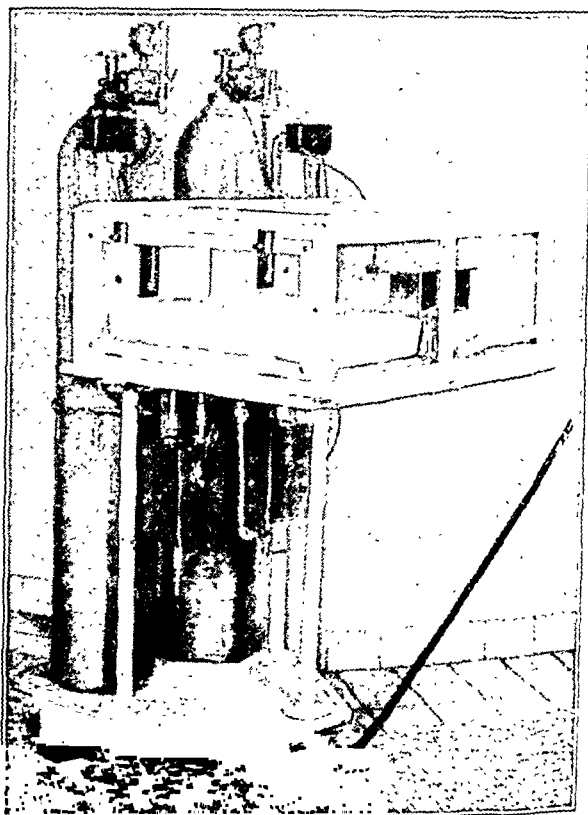
A. ROBERT BAUER, M.D., DETROIT

The apparatus herein described was built in July 1931 to meet in a practical way the well established needs of the premature or the full term new-born infant suffering from respiratory or circulatory embarrassment; namely, (1) carbon dioxide-oxygen mixture¹ for stimulation of the respiratory centers, (2) oxygen² to combat anoxemia, (3) external heat to maintain body temperature, (4) easy accessibility to provide feeding and nursing care with a minimum of handling and without removing the baby from the atmosphere of oxygen, and (5) full visibility to insure careful watching. Continuous use of the apparatus in the nursery of the Henry Ford Hospital for five years has proved its value in treating cases of asphyxia neonatorum, intracranial hemorrhage, atelectasis, congenital heart disease, blood dyscrasias, excessive mucus or any other condition that might cause cyanosis or anoxemia. While statistics to prove it are difficult to gather, it is the opinion of those who have used the apparatus that it has saved several lives and has prolonged life in others long enough for other therapeutic measures to be successfully instituted.

The apparatus consists of a carriage, a large size tank of carbon dioxide-oxygen and one of oxygen (both having suitable reducing valves), a glass cabinet, and a thermostatically controlled electric hot water heating and humidifying system. The heating system gave the most trouble. We found that it was almost impossible to maintain safely a steady, desirable temperature with the available appliances, and so we constructed a miniature hot water system similar to the systems used in heating houses. This, controlled by a thermostat, will give a

temperature variation of less than 5 degrees F. The humidity is supplied by the expansion chamber of the heating system and is controlled by adjusting a slide on the top of the chamber.

The operation of the apparatus is simple and requires only reasonable watching. It is kept in the premature nursery always ready for use. The heating unit should be turned on as soon as it is seen that a baby will need treatment, so that the cabinet will be preheated. It was found that by setting the thermostat at 85 F. a temperature varying between 85 and 90 was obtained. This was satisfactory for most cases. As a rule, babies requiring treatment needed stimulation as well as oxygen; therefore they were started on the carbon dioxide-oxygen mixture. This is introduced into the cabinet at the rate of 10 liters per minute for two or three minutes to get a rapid concentration. After this the rate of flow is cut to 3 liters per minute, which is enough to maintain the desired concentration. The carbon dioxide-oxygen mixture is continued until respirations are full and even, and then it is stopped and oxygen is run in at the rate of 3 liters per minute. From this point on, the carbon dioxide-oxygen mixture is used instead of oxygen whenever the baby needs further stimulation, and it is used as



Combination resuscitator and incubator for new-born infants.

long as necessary. On general principles, the carbon dioxide-oxygen mixture was given for ten minutes out of each hour and oxygen for the other fifty. This was found to meet the requirements of most babies. Apropos of the controversy incident to the variance in the points of view of Henderson and Eastman, it was the clinical observation that in the average case the carbon dioxide-oxygen mixture was followed by an increase in the depth and rate of respirations not seen with oxygen. The amount of continuous treatment varies for different cases from one-half hour up to two days, the treatment being stopped when the baby breathes well and retains a good color outside the cabinet.

The other two features, accessibility and visibility, need no comment other than to say that the very ill patients are cared for inside the cabinet, as they become cyanotic when removed for even a very short time. Those not so ill may be kept out for varying periods of time depending on their condition.

5696 West Vernor Highway.

From the Pediatric Department of the Henry Ford Hospital.
Dr. Joseph A. Johnston gave many suggestions in the course of this work.
Mr. August Krollicki, superintendent of maintenance, assisted in building the apparatus.

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THYMOL THERAPY IN ACTINOMYCOSIS

HAROLD B. MYERS, M.D., PORTLAND, ORE.

A few of the volatile oils, namely, thymol, carvacrol, mustard, cinnamon and clove, have been shown¹ to possess fungicidal properties of considerable merit. Thymol and its liquid isomer carvacrol are the only members of this group of fungicidal volatile oils possessing the power of destroying *Actinomyces* quickly, when in aqueous solution. Thymol and carvacrol each kill *Actinomyces* in forty-five seconds in 1:1,000 aqueous solution. This marked toxicity toward *Actinomyces* suggests the possibility of therapeutic value.

An opportunity to test the therapeutic merit of thymol in human actinomycosis presented itself in 1924. An abbreviated case report follows:

J. N., a white man, aged 59, a blacksmith, habitually chewed straw. He slept on straw while recently employed on a ranch. He was seen Aug. 10, 1924, because of a mass "the size of a pigeon's egg" at the juncture of the right zygoma with the mandible. The teeth of both jaws on the right side had been removed. Physical examination revealed nothing of noteworthy interest other than as stated. A diagnosis of osteosarcoma was made on this date and high voltage x-ray therapy was given. The lesion increased in size, fluctuation being evident September 15. It was incised and pus was sent to the laboratory, staphylococci being reported. The lesion continued to increase in size, reaching from the level of the outer canthus to 5 cm. below the ramus of the mandible on December 24, when a fluctuating extension was incised and *Actinomyces* was identified on microscopic examination. Potassium iodide was given in rapidly increasing dosage, reaching 16 Gm. (250 grains) a day. The lesion continued to increase during fifty-eight days of iodide administration. Iodide therapy was then discontinued and thymol therapy instituted in a dose of 1 Gm. by mouth, twice a week. Seventeen days following the beginning of thymol therapy, the record states, the swelling had almost disappeared and the patient could open his mouth a short ways. There being no complaint from the use of thymol, the dose was increased to 1.5 Gm. March 21, 1925. The record states that the patient was apparently cured and was discharged April 25. The patient agreed to return to the outpatient clinic in the event any suggestion of recurrence developed, but he did not return.

The results in this case encouraged the further trial of thymol in actinomycosis, recorded in briefly abstracted form as follows:

CASE 2.—A. S., a white man, aged 45, a farmer, seen in April 1925, had a discharging abscess under the left mandible. He had first noticed it two months previously, following infection of a tooth. The lesion increased in size, the patient being presented three weeks later for diagnosis at a clinic, *Actinomyces* being identified under the microscope. Thymol was prescribed in capsules, 1.5 Gm. once a day, on alternate days. According to his physician's record he "recovered completely in about one month's time and remained without recurrence."

No further patients with actinomycosis were observed until 1934.

CASE 3.—W. G., a white man, aged 58, a farmer, seen Feb. 13, 1934, had an indurated mass measuring 6 by 6 cm. in the right groin. He first noticed it January 4 and thought at first it was a hernia. The mass was covered by skin pigmented reddish brown. It was firm and not particularly sensitive to pressure. The lesion was not diagnosed, and on March 8, the mass being 8 by 10 cm., an area of localized fluctuation was incised and *Actinomyces* was identified under the microscope. Thymol 10 per cent in olive oil was injected into the open lesion and thymol 1.5 Gm. once a day, on alternating days, prescribed. The patient refused to take the capsules following the fifth dose, because of gastric irritation. The local therapy was given at increasing intervals of days, owing to the breakdown and discharge of the granulomatous mass. The lesion became more sensitive as the mass disintegrated. April 9 the patient was allowed up from bed. The local lesion showed rapid improvement. An

attempt to resume systemic thymol therapy was made but the patient refused to swallow the capsules because of the gastric irritation produced. May 8 he complained of pain in the back. A roentgenogram indicated an area of consolidation in the left lung with extensive adhesions. No fluid was visible. The right lung was clear. Further roentgenograms at frequent intervals showed increasing involvement of the left lung. Repeated cultures of fluid obtained by thoracentesis and of sputum failed to yield a growth of *Actinomyces*. The lesion in the right groin healed. The patient died October 10 and necropsy showed an actinomycotic empyema and abscess of the left lung; the lesion in the right groin was healed and showed no evidence of active infection.

CASE 4.—E. M., a man, aged 38, a Filipino, had a swelling of the right jaw, Aug. 7, 1934. *Actinomyces* was identified from curetted material obtained from the incised area October 11. Thymol crystals in capsules were given by mouth once each day in a dosage of 1.5 Gm. for a period of twenty days. Thymol 10 per cent in olive oil was injected into the sinus tract (holding approximately 2 cc.) once each day for sixteen days. The patient was discharged at the end of this period as "clinically cured." He was kept under observation in the outpatient clinic with no evidence of recurrence over several months, when he was finally released.

CASE 5.—C. G., a white man, aged 36, was admitted to the hospital in June 1934 with the differential diagnosis of "subpectoral abscess" or "osteosarcoma." July 22 a biopsy revealed *Actinomyces*. X-ray examination showed pulmonary involvement. Iodide 3.3 Gm. (50 grains) was given daily. The patient was intolerant of larger doses of iodide. Morphine was administered to relieve pain. Serial roentgenograms indicated increasing involvement of the pulmonary lesion. Thymol therapy was begun October 12 with dose of 2 Gm. in capsules, by mouth, once a day; olive oil solution of thymol 10 per cent (later increased to 15 and 25 per cent) was injected into the sinus tracts. Marked clinical improvement was shown. X-ray comparison showed a marked decrease in pulmonary infiltration. There was gain in weight to 152 pounds (69 Kg.). The weight on admission was 140 pounds (63.5 Kg.) with subsequent loss. The discharge from the sinus tracts, though diminished, has not altogether ceased. Roentgenograms of the chest on Aug. 17 and Oct. 9, 1935, showed no evidence of further extension of the lesion in the lungs.

CASE 6.—M. L., a white woman, aged 40, a housewife on a farm, first noticed inflammation of the left shoulder March 21, 1936. Three days later it was diagnosed "erysipelas" and an ointment was prescribed for local application. The lesion rapidly extended toward the neck, the left breast and down the left arm. *Actinomyces* was identified under the microscope from pus obtained from a sinus April 18. Thymol therapy was begun April 21 with oral dose of 2 Gm. (30 grains) once a day and a 20 per cent solution of thymol in olive oil was injected into the sinus. The thymol dosage was decreased to 1 Gm. once a day June 21 and was discontinued August 24. Surgical repair of extensive sinus tracts over the pectoral region and shoulder was carried out September 10, with subsequent healing and no further evidence of actinomycotic infection.

SUMMARY

Five patients with actinomycotic infection were treated with thymol locally and systemically, each one recovering. Patient 3 refused to take thymol internally and died of visceral actinomycosis, though the original lesion healed under local therapy. Patient 5 still has a discharge from the sinus tracts. A similar discharge stopped in patient 6 after surgical repair at the completion of thymol therapy. From the experience obtained with the patients whose records have been briefly abstracted, thymol therapy in actinomycosis seems worthy of further clinical trial. It should be applied locally whenever possible in olive oil solution, from 10 to 20 per cent in strength. Systemic therapy with thymol is advisable in attacking the infection and preventing its spread to other parts of the body. Thymol may be given in crystal form in capsules, one dose a day in order to obtain a peak load in circulation. It should be given on an empty stomach to avoid retention and irritation of the stomach and, furthermore, to speed absorption and obtain as high a concentration in circulation as possible. A glass of milk may be given to minimize gastric irritation. Sinus tracts may require surgical repair following the destruction of the actinomycotic infection.

Dr. Myers died March 16, 1937.

From the Department of Pharmacology, University of Oregon Medical School.

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Special Article

CHRONIC DISEASE AND GROSS IMPAIRMENTS IN A NORTHERN INDUSTRIAL COMMUNITY

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AND

DOROTHY F. HOLLAND

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The increasing importance of the problem of chronic disease challenges the best efforts of the medical and public health professions toward a broad program of control. Its social consequences masked in the larger problems of unemployment and dependency among young and old, chronic disease presses on the national scene today as an essential although undeveloped aspect of the broader program of social security. An effective program of control demands cooperation in broad policies and an appropriate division of labor:

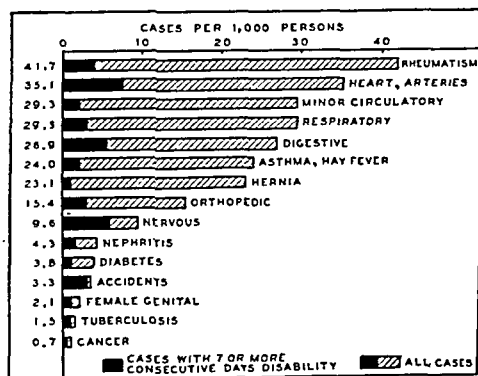


Chart 1.—Prevalence of certain chronic diseases and gross impairments. Sole, primary or contributory diagnosis; exclusive of deaths. Orthopedic cases are exclusive of impairments of fingers and toes.

in the field of medicine, continued research on the etiology of certain chronic diseases and experimentation with promising therapeutic procedures; in the field of public health, the prevention of predisposing acute diseases, community education to promote early diagnosis, and the provision of adequate facilities for the care of chronic cases in the low income groups. From the public health standpoint, the scope of a coordinated program must be determined with reference to exact knowledge of the magnitude of the problem in various local areas. With the purpose of extending this essential basic information, which now exists only for limited areas and special groups, the United States Public Health Service in 1935 conceived the plan for a comprehensive health survey¹ designed to define the problem of chronic disease on a national scale.

The leading position of the chronic diseases as causes of death is familiar to all observers of mortality trends. A striking indication of the change in their relative importance is contained in the mortality

experience of the state of Massachusetts during the past fifty years.² In 1880 and 1900 a selected group of the major chronic diseases³ accounted for approximately one third of all deaths; in 1930 deaths due to these causes represented approximately two thirds of the total deaths.⁴ On the other hand, a group of typical acute diseases⁵ which, in 1880 and 1900, ranked in importance with the chronic group as causes of death, in 1930 caused only one death for every five resulting from the major chronic diseases. In the country as a whole in 1933 the cardiovascular-renal diseases alone caused 41 per cent of all deaths of persons from 45 to 64 years of age, and 58 per cent of the deaths at ages 65 and over.⁶ Further extension of the evidence from our mortality statistics is unnecessary, since its implications are familiar even to the layman.

Less widely recognized, however, are the characteristics of chronic illness which lead to its predominance among the public health problems of the present. The cost and complexity of treatment required by the major chronic diseases is known to both patient and physician. The social and economic disorganization resulting from chronic illness of long duration extends the problem beyond the stricken individual to the family, with ultimate transfer of responsibility to the community when the family is unable to absorb the economic burden without public assistance. We find, however, that public assumption of responsibility for the chronic sick is limited chiefly to the crippled, tuberculous, syphilitic and mentally diseased, facilities for the care of which are by no means uniformly adequate. With these exceptions, the control of chronic disease is rejected from the accepted scope of public health activity. Notwithstanding the efforts of certain pioneers in public health theory, both state and local health department practice shows a general lack of development in this field, and it is significant that the first community program for the care of the chronic sick represents the result of the joint effort of a medical specialist in the treatment of chronic disease and a local social agency.⁶

The United States Public Health Service looks to the completed results of its health survey⁷ of some 3,000,000 persons in ninety-two representative urban communities⁸ as a contribution toward a factual basis from which such a community program may be evolved. Furthermore, the analysis of the survey data will supplement existing knowledge of the health requirements of the dependent groups included within the scope of the present social security program. The definition

2. Special tabulation of figures from the Thirty-Ninth Report to the Legislature of Massachusetts Relating to the Registry and Return of Births, Marriages and Deaths in the Commonwealth, for the Year Ending Dec. 31, 1880; the Fifty-Ninth Report of Births, Marriages and Deaths in Massachusetts, for the Year 1900, and the Annual Report on the Vital Statistics of Massachusetts for the Year Ending Dec. 31, 1930.

3. The group of chronic diseases includes the cardiovascular-renal diseases, cancer, diabetes and respiratory tuberculosis; the selected acute diseases include the diarrheal diseases: diarrhea, dysentery, enteritis, cholera and cholera infantum; the communicable diseases of childhood: measles, scarlet fever, whooping cough, diphtheria and croup; and the following respiratory diseases: influenza, bronchitis and pneumonia.

4. The change in the age distribution of the population of Massachusetts which has taken place during this period is indicated by the following figures, taken from the census of Massachusetts, 1880, compiled by authority of the legislature from the Returns of the Tenth Census of the United States, Boston, 1883; Fifteenth Census of the United States, 1930, Washington, D. C., Government Printing Office, 1933, Vol. 2:

Age	Percentage of Total Population 1880	1930
45 years and over.....	21.6	26.6
65 years and over.....	5.4	6.5

5. Special tabulation of figures from Mortality Statistics, 1933, Thirty-Fourth Annual Report, Washington, D. C., Government Printing Office, 1936.

6. Boas, E. P.: A Community Program for the Care of the Chronic Sick, Hospitals 10: 18-23 (Feb.) 1936.

7. A preliminary report on the hospital survey has been published. Mountain, I. W.: Business Census of Hospitals, Hospital 10: 19-21 (Nov.) 1936.

8. The surveyed cities are located in nineteen states, in three of which the survey has been extended also to twenty-three rural counties.

From the Office of Statistical Investigations of the United States Public Health Service. Published by permission of the Surgeon General.

1. The project is being executed with the aid of grants from the Works Progress Administration, under the general direction of the senior author. The scope of the survey has been described in detail in the Annual Report of the Surgeon General of the United States Public Health Service for 1936. Dr. Selwyn D. Collins, director of the Office of Statistical Investigations, and Rollo H. Britten, senior statistician of the United States Public Health Service, and Clark Tibbitts, field director of the survey, gave their advice and assistance.

of the problem of chronic disease in old age will indicate the extent of the burden which the costs of medical care impose on the needy aged. The study of disabling illness among persons of the working ages will throw light on chronic disability as a factor in unemployment and the state of dependency which is the frequent outcome of incapacitating illness in the wage-earner. While significant observations on the problem of chronic illness in the general population must await the study of more extensive records, it seems of interest at this time to present the preliminary results of the survey in a northern industrial city as an indication of the broad lines along which further analysis will proceed.

THE CHARACTERISTICS OF THE SURVEYED COMMUNITY

The city selected for preliminary study is a stable, industrial community in the North having a population of some 150,000 persons in the census of 1930. Approximately one ninth of the population,⁹ including some 18,000 persons in 5,118 families, was canvassed by the house-to-house method, 98 per cent of the schedules being returned during the period November 1935 through February 1936. The sample was obtained by an arbitrary division of the census enumeration districts into units having an average population of 750, every ninth unit being completely canvassed. Social and economic data and records of illness and medical services for a twelve months' period were obtained by the enumerator from a responsible informant for each member of the family.

The surveyed group resembles the city as a whole in color and nativity, being predominantly a white population with persons of native birth forming 74 per cent of the total. The proportion of children in the sample was somewhat lower, and the proportion of old persons higher, than obtained in the city as a whole in the census of 1930. The birth rate of the surveyed population was of approximately the same order as that for the entire city in 1935; the death rate was lower than the city rate, a low death rate being frequently observed in the experience of sickness surveys.

TABLE 1.—Chronic Disease and Major Orthopedic Impairments (Sole, Primary or Contributory Diagnosis)

Type of Case	Cases per 1,000 Persons
Total, disabling and nondisabling.....	279
Status on the day of the canvass:	
Disabling	23
Nondisabling	256
Status in the survey year:	
Disabling for a minimum of 7 consecutive days.....	49
Disabling for less than 7 consecutive days, or nondisabling	230

The predominating occupational group comprises skilled and semiskilled workers. On the day of the canvass, 71 per cent of the family heads were employed and 14 per cent were unemployed or receiving work relief. Nine per cent of the unemployed heads reported that they were unemployed because of disability. During the survey year, 15 per cent of all surveyed families had been on relief. A total of 45 per cent of the families reported an annual income of \$1,000 or less, and only 5 per cent had an annual income in excess of \$3,000.

THE LEADING CAUSES OF CHRONIC DISABILITY

The average prevalence of chronic disease and gross impairments in the surveyed community may be broadly

indicated by the fact that 22 per cent of the surveyed population, or approximately one in every five persons canvassed, was reported to have a chronic disease, a permanent orthopedic impairment or a serious defect of vision or of hearing, the symptoms of which had been recognized for at least three months. The chronic diseases and impairments enumerated represented both

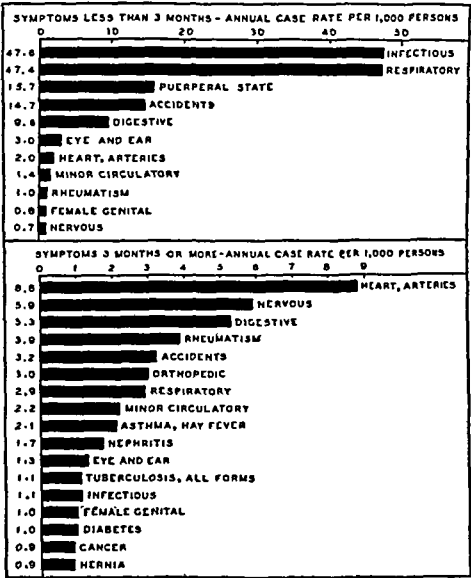


Chart 2.—Incidence of disabling illness by cause. Illnesses disabling for seven consecutive days or longer in the survey year, including deaths, classified in broad groups as acute (symptoms of less than three months' duration) and chronic (symptoms of three months' duration or longer) by cause—sole, primary or contributory diagnosis. Orthopedic cases are exclusive of impairments of fingers and toes.

disabling and nondisabling chronic pathologic conditions known to the informant,¹⁰ the impairments including serious defects of vision and of hearing and lost or permanently impaired members or parts of the body. Approximately 4 per cent of the surveyed population had been disabled for one week or longer, and 1 per cent had been disabled continuously throughout the year as a result of chronic disease or permanent impairments due to disease or injury.¹¹

The prevalence of chronic disease increases with age, reaching a maximum among persons aged 65 and over. A chronic disease or gross impairment was reported for 58 per cent of all persons aged 65 and over, and 13 per cent of persons in this age group had been disabled by chronic disease for one week or longer in the survey year. The proportion of chronic invalids was likewise higher among the aged; 5 per cent of all persons aged 65 and over, or 9 per cent of all persons of these ages having a chronic disease, had been disabled continuously for at least twelve months. The proportion of chronic

10. In each case of illness for which permission was obtained for medical follow-up, the medical attendant was queried for confirmation of the diagnosis reported by the informant as the cause of illness. In this preliminary study the informant's diagnosis has been accepted, since returns of the medical reports were incomplete during the period of preparation. A hand tabulation of a random sample including 1,270 medical reports received from 140 physicians in five of the surveyed cities indicates confirmation of the informant's diagnosis in 86 per cent of the cases. In an illness due to multiple causes, the informant's designation of the diagnosis which was the most important cause of disability was taken as the primary cause of illness.

11. The distribution of persons disabled for more than twelve months, by the duration of disability from the month of onset to the month in which the canvass was made, is given below; twenty persons confined in institutions are included:

Duration of Disability	Number	Per Cent
1 year, less than 2.....	35	21.9
2 years, less than 3.....	22	13.8
3 years, less than 4.....	17	10.6
4 years, less than 5.....	15	9.4
5 years, less than 10.....	45	28.1
10 years or longer.....	26	16.2

9. A preliminary announcement of the survey contained a reproduction of the survey schedule and the original list of cities to be canvassed. The New Health Survey, J. A. M. A. 105:1127 (Oct. 5) 1935.

invalidity among the aged was of approximately the same order in the Massachusetts chronic disease survey,¹² 8.1 per cent of all sick persons aged 70 and over being completely disabled at the time of the 1930 survey, the corresponding figure for 1931 being 7.4 per cent.¹³

A more exact measure of the prevalence of chronic disease is derived from the records of the total cases enumerated in which count is made of the diagnosis of

TABLE 2.—*The Relative Severity of Chronic Disabling* Illness Due to Certain Causes (Sole or Primary Diagnosis Only)*

Diagnosis	Percent of Annual Days		Annual Days per Case of Specified Type		Number of Cases†	
	Disabling	Bed	Disabling	Bed	Disabling	Bed
All chronic disabling* illness....	100	100	145	64	778	581
Degenerative diseases—total....	20	23	127	57	176	152
Cardiovascular-renal diseases....	16	19	125	55	146	126
Cancer.....	2	2	129	73	14	13
Diabetes.....	2	2	143	60	16	13
Orthopedic cases, accidents.....	17	15	219	89	90	61
Nervous diseases.....	16	24	199	135	93	65
	9	5	120	25	82	69
	7	7	126	63	69	40
	6	4	92	32	70	46
	4	7	244	173	19	16
Minor circulatory diseases.....	2	1	74	14	32	24
Hernia.....	1	1	86	37	14	11
All other causes.....	18	13	144	52	143	97

* Disabling for seven or more consecutive days in the survey year.
† Disease symptoms of three months' duration or longer.

each disease present in an individual suffering from several chronic diseases of simultaneous or successive development. The total case rate for all sole, primary or contributory diagnoses¹⁴ of chronic disease or major orthopedic impairments prevalent on the day of the canvass was 279 per thousand persons; the prevalence rates for cases classified by disability status on the day of the canvass and in the survey year are given in table 1.

As a contribution to the practical program of chronic disease control it is essential that we attempt to define the specific chronic diseases which in the experience of the surveyed community appear to demand special consideration. In establishing the relative importance of the chronic diseases, two bases of comparison are available: the first, frequency of occurrence; the second, severity in terms of the resultant disability. Our major interest obviously centers in the chronic diseases that cause the largest amount of disability. We may, however, consider the most frequently reported diseases first, subsequently evaluating them in terms of severity.

Rheumatism, chronic diseases of the respiratory and digestive systems, the cardiovascular-renal diseases and minor circulatory diseases¹⁵ account for approximately three fourths of all cases of chronic disease observed in the surveyed population.¹⁶ The high relative fre-

quency of these diseases is shown in chart 1. Among the most frequently reported diseases, the rates for non-disabling cases and cases disabled for less than seven consecutive days, shown in the cross-hatched portion of the bars, greatly exceed those for disabling¹⁷ cases, indicating that a large volume of chronic disease prevalent in the population is of a low order of severity. However, the relation between the disabling and the total case rate varies widely among the chronic diseases studied. Thus, the nervous diseases show a disabling case rate which is 62 per cent of the total case rate, while the disabling case rate for rheumatism is only 9 per cent of the total case rate.

The order of importance of the chronic diseases as causes of disabling illness is more clearly apparent from a consideration of the lower section in chart 2. A new alinement of the chronic diseases results from the exclusion of nondisabling cases. Rheumatism, which was observed to be the most frequently reported chronic disease, is outranked in frequency by diseases of the heart and arteries and the nervous and digestive diseases, when the causes of chronic disabling illness only are considered.

On the other hand, cancer,¹⁸ diabetes and tuberculosis, which our mortality experience indicates are important causes of death, were relatively infrequent in the surveyed population; both the total and the disabling case rates due to these causes are seen to be relatively low. The magnitude of the disabling case rate is thus an insufficient measure of the relative severity of the chronic diseases. Additional criteria are available in the total days of disability resulting from chronic illness during a year, and in the annual bed days, which may be distributed by specific cause of illness; a further evaluation of severity may be made by relating the annual volume of disability for a specific chronic disease

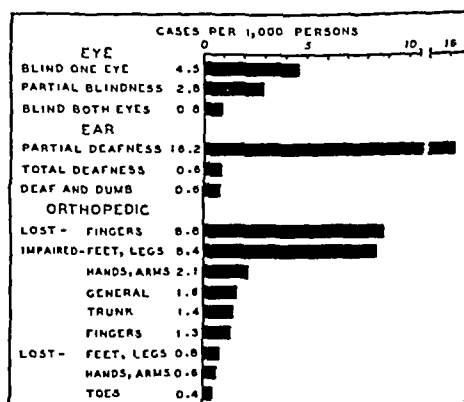


Chart 3.—Prevalence of gross impairments. Sole, primary or contributory diagnosis.

to the number of disabling cases of the given diagnosis, resulting in an annual average of days of disability per case. These figures for the survey experience are shown in table 2. While cancer, diabetes and tuberculosis contributed relatively little to the annual volume of chronic disability, owing to their low incidence, the average annual amount of disability per case for each of these

12. Bigelow, G. H., and Lombard, H. L.: *Cancer and Other Chronic Diseases in Massachusetts*, Boston and New York, Houghton, Mifflin Company, 1933.

13. The combined surveys of 1929-1931 in Massachusetts indicated that 29 per cent of persons aged 40 and over were sick with chronic disease. In the present survey, gross impairments as well as chronic diseases were recorded, resulting in a higher crude prevalence rate; thus, 42 per cent of persons aged 45 and over were reported to have a chronic disease or gross impairment.

14. The diagnosis of the sole chronic disease or major orthopedic impairment present is included, as is the diagnosis for each chronic disease or major orthopedic impairment present in an individual having more than one disease or impairment. In the latter case one diagnosis is designated as primary, the remaining diagnoses as contributory.

15. Hemorrhoids, varicose veins and other diseases of the lymphatic and circulatory systems (exclusive of diseases of the heart and coronary arteries, and arteriosclerosis) are included in this group.

16. In the classification of illness by cause, based in general on the International List of Causes of Death, 1929 revision, certain major departures were made as follows: cerebral hemorrhage and its subtiles are included with diseases of the heart and arteries; neuralgia and neuritis, lumbago and related conditions are included with rheumatism; the diseases of the veins and lymphatic system and other diseases of the circulatory system are grouped under the minor circulatory diseases. See also footnote 22.

17. In the subsequent discussion, the use of the term disabling is restricted to cases disabled for a minimum of seven consecutive days in the survey year; in this category are included all confinement, hospital and fatal cases without reference to the duration of disability. "Disabling" is used in the sense of inability to work or pursue usual activities.

18. The total disabling illness rate for cancer, including additional cases with symptoms of less than three months' duration, was 1.3 per thousand persons.

diseases was relatively high. On this basis, cancer, diabetes and tuberculosis rank in importance with the cardiovascular-renal group, nervous diseases, chronic digestive diseases, rheumatism and orthopedic cases and accidents as important causes of chronic disability. These causes considered as a group accounted for 73 per cent of the annual days of disability due to chronic illness and 81 per cent of the annual bed days. A comparison of the annual average days of disability per case for the various chronic diseases indicates that, in this experience, tuberculosis, the nervous diseases and the group including orthopedic cases and accidents show the highest severity, measured by this criterion. It is of interest that these diseases comprise the group for which some measure of public supervision exists in most communities, indicating that their importance as causes of severe disability is generally recognized. The severity of the nervous diseases is of special interest in relation to their etiology, in which syphilis is an important factor.¹⁹

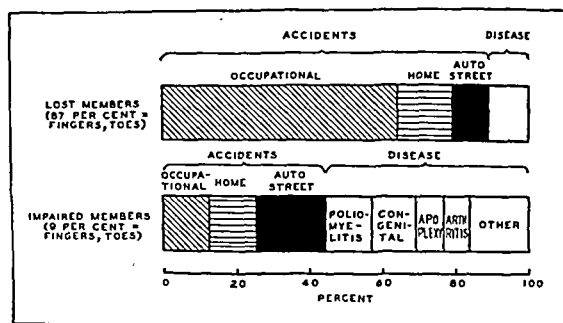


Chart 4.—Percentage distribution of orthopedic defects according to major causes. Automobile and street accidents include also other public accidents.

A Broad Classification of Acute and Chronic Disease.—The distinction between acute and chronic disease is not susceptible of exact definition, but for statistical purposes an approximate classification is often desirable. In general, illness due to typically acute diseases is characterized by the sudden onset and early resolution of pathologic symptoms, while the disease processes resulting in chronic disease develop slowly, and may be arrested, but do not disappear. A broad separation of acute and chronic diseases may thus be made with reference to the duration of the disease symptoms, permitting a comparison of the characteristics of acute and chronic illness when insufficient data prevent the study of specific causes. The effectiveness with which a classification of illness on this basis segregates the important acute and chronic diseases is shown in chart 2. The designation of diseases with symptoms of three months' duration or longer as a predominantly chronic group appears to be justifiable, since the majority of the observed cases of such diseases as rheumatism, the cardiovascular-renal diseases, asthma, tuberculosis, cancer and diabetes fall within this class.²⁰ Cases of these

chronic diseases presenting symptoms of short duration, representing a recent onset of the disease process, show relatively low rates compared with those for cases of long duration. On the other hand, the most frequently reported diseases and conditions with symptoms of short duration are of a typically acute nature and include principally the infectious diseases, colds, acute bronchitis, tonsillitis and pneumonia (predominating in the respiratory group), conditions associated with the puerperal state, and accidents. These diseases comprise the group reported as the leading causes of illness in earlier sickness surveys;²¹ segregated from the chronic conditions by the short duration of their disease symptoms, they now appear as the leading causes of acute illness.²²

THE PREVALENCE OF GROSS IMPAIRMENTS

Orthopedic conditions and current accidents have been shown to be a major cause of chronic disability in the surveyed population, ranking in importance with the cardiovascular-renal and nervous diseases. Thus from the broad standpoint, accident prevention and the adequate control of diseases resulting in physical handicaps hold great possibilities for the reduction of chronic disability.

In the present survey an attempt was made to obtain complete records of serious defects of vision and hearing and permanent impairments of the skeleton and neuromuscular system, including lost and impaired members or parts of the body, the latter being considered for convenience in the group of orthopedic conditions. Both disabling and nondisabling permanent impairments incurred during the survey year and in prior years were enumerated. The results of this census are thus of special interest, since they represent the total permanent effect of disease and injury over the entire lifetime of the surveyed population. They are unique also in that they relate to the total population, the usual census of crippling conditions being restricted to those prevalent among children.

Orthopedic cases involving major and minor impairments were reported by the surveyed group more frequently than serious defects of either vision or hearing, the total case rate for orthopedic conditions being 25 per thousand persons, compared with a rate of 17 for defects of hearing, and 8 for defects of vision. The relative frequency of the specific impairments observed is shown graphically in chart 3. Major orthopedic conditions, involving impairment or loss of the organs of locomotion, hands, arms and trunk, show a total case rate of 15 per thousand persons. The degree of functional maladjustment resulting from these conditions is indicated by the disabling case rate, 3 per thousand persons, which represents 20 per cent of the total rate.

21. Sydenstricker, Edgar: A Study of Illness in a General Population Group: Hagerstown Morbidity Studies No. 1. The Method of Study and General Results, Pub. Health Rep. 41:2069-2088 (Sept. 24) 1926. Collins, S. D.: Causes of Illness in 9,000 Families, Based on Nationwide Periodic Canvasses, 1928-1931, *ibid.* 48:283-308 (March 24) 1933.

22. The effective use of the duration of the disease symptoms in separating acute from chronic diseases is apparent in the case of disease groups predominantly acute, such as the infectious diseases, or chronic, such as the diseases of the heart and arteries. The result of this classification is somewhat obscured when less homogeneous groups, such as the respiratory and digestive diseases, are employed. Examination of the specific diseases in these diagnosis groups indicates that the segregation of acute from chronic conditions on the basis of duration of symptoms is equally effective. Among the "long duration" digestive diseases, ulcer of the stomach and chronic conditions of the gallbladder predominate; "short duration" digestive diseases include a majority of typically acute conditions—appendicitis, acute stomach disorders, and diarrheal diseases. The "long duration" respiratory diseases include sinus infection and a variety of chronic conditions of the respiratory tract, "short duration" respiratory diseases including principally colds, acute bronchitis, tonsillitis and pneumonia. In both groups a small number of chronic diseases of recent onset is included among the "short duration" cases.

19. Satisfactory reporting of syphilis is not obtained by the method of the house-to-house canvass. In the present survey, only one case of syphilis was reported, although supplementary data, made available by Dr. Joseph W. Mountin from the study of health facilities being conducted under his direction, indicate that approximately 100 persons in the survey area received treatment for syphilis in the local health department clinic.

20. In the census of chronically ill persons under the care of medical and social agencies in New York City, 95 per cent of the group reported a duration of disease symptoms of three months or longer. See Jarrett, Mary C.: Chronic Illness in New York City, vol. 1: The Problems of Chronic Illness, appendix IV, table 5, New York, Columbia University Press, 1933.

Furthermore it has been shown that the volume of chronic disability resulting from these disabling cases is high.

The relative importance of accidents and certain specific diseases as causes of impairments is shown in chart 4. In the surveyed population of all ages, accidents, considered as a group, were of relatively greater frequency as a cause of impairments than any specific disease. When impairments were classified by cause in broad age groups it was found that certain specific

among school children, young adults, persons of middle age and the aged? To what extent does the problem vary according to dependency status and income? What is the importance of chronic illness in relation to unemployment?

Age and Sex Incidence.—When all chronic disabling illnesses are classified by age, one finds that 10 per cent of all cases occur among children under 15, 7 per cent among young persons between the ages of 15 and 25 years, and 83 per cent among adults. Distribution of

TABLE 3.—Incidence of Disabling* Illness Classified by Duration of Symptoms, by Age and Sex (All Causes, Sole or Primary Diagnosis Only)

Age Group	Annual Disabling Illness Rates per Thousand of Population									Population		
	All Disabling Illness†			Acute Disabling Illness‡			Chronic Disabling Illness§					
	All Persons	Males	Females	All Persons	Males	Females	All Persons	Males	Females	All Persons	Males	Females
All ages	185	163	205	142	127	156	43	36	49	18,126½	8,527	9,592
Under 5	337	331	342	322	317	323	14	15	14	1,251	619	632
5-9	450	455	446	435	439	429	16	16	16	1,634	826	808
10-14	134	132	135	115	119	111	19	13	24	1,647	816	831
15-19	94	85	102	79	72	85	15	14	17	1,562	738	823
20-24	138	84	180	115	67	152	23	17	28	1,513	657	856
25-34	157	89	212	125	70	170	32	19	42	2,579	1,301	1,578
35-44	127	90	159	80	56	100	47	34	58	2,614	1,220	1,394
45-54	130	105	153	75	64	85	55	42	68	2,206	1,054	1,152
55-64	150	143	157	71	62	78	78	80	77	1,442	676	766
65 and over	256	243	267	106	93	113	146	139	152	1,325	610	715
Number of cases												
All ages||	3,360	1,389	1,971	2,576	1,081	1,495	778	304	474			

* Disabling for seven consecutive days or longer in the survey year.

† Based on all illnesses, including a small number with duration of symptoms unknown.

‡ Duration of disease symptoms less than three months.

§ Duration of disease symptoms three months or longer.

|| Includes a small number of cases in which the age was unknown.

¶ Includes a small number of persons with age unknown.

TABLE 4.—Annual Incidence and Duration of Disabling* Illness Classified as Acute† and Chronic‡ by Age (All Causes, Sole or Primary Diagnosis Only)

Age Group	Disabling* Illness Rate per Thousand					Annual Days of Disability									
						Per Person					Per Case				
	All Disabling Illness§					All Disabling Illness§					All Disabling Illness§				
		12 Months Cases Excluded	Acute†	Chronic, Total‡	Chronic, Excluded		12 Months Cases Excluded	Acute†	Chronic, Total‡	Chronic, Excluded		12 Months Cases Excluded	Acute†	Chronic, Total‡	Chronic, Excluded
All ages‡	185.4	175.9	142.2	42.9	33.4	9.3	5.8	3.0	6.2	2.8	50.0	33.2	20.8	145.4	84.0
Under 15	303.8	302.3	257.2	16.6	15.0	7.4	6.8	5.6	1.7	1.2	24.2	22.5	19.6	104.3	73.0
15-24	115.8	111.9	96.6	19.2	15.3	4.8	3.4	2.0	2.8	1.4	41.5	30.4	20.4	147.7	93.5
25-44	142.4	135.6	103.4	39.0	32.2	6.9	4.5	2.2	4.8	2.3	43.6	33.2	20.0	122.1	72.4
45-64	138.2	124.2	73.2	64.4	50.4	11.3	6.3	1.8	9.4	4.3	82.1	50.8	25.1	145.6	86.2
65 and over	255.8	206.8	106.4	146.4	97.4	30.3	12.7	2.5	27.1	9.4	118.5	61.2	23.8	184.9	96.6

* Disabling for seven consecutive days or longer in the survey year.

† Duration of disease symptoms less than three months.

‡ Duration of disease symptoms three months or longer.

§ Includes a small number with duration of symptoms unknown.

¶ Includes a small number with age unknown.

diseases, such as poliomyelitis and congenital causes, ranked in importance with accidents as causes of impairments among young persons under 25 years of age. This will be shown in the subsequent discussion of the variation in prevalence of gross impairments with age. The data indicate that the campaign for the reduction of accidents, the early registration and adequate treatment of congenital defects and the supervision of cases of poliomyelitis constitute an important part of a community plan for the control of chronic disease.

THE GROUPS CHIEFLY AFFECTED BY CHRONIC DISEASE

The formulation of a program for the control of chronic disease must be based on knowledge of the groups of the population chiefly affected by chronic illness. What is the comparative severity of the problem

the cases occurring among adults by broad age periods shows that 33 per cent of these cases occur among young adults (from 25 to 44 years); 37 per cent among persons of middle age (from 45 to 64 years), and 30 per cent among persons aged 65 and older. Thus, while the number of cases occurring among young persons is by no means negligible, the cases are largely concentrated among adults, falling in approximately the same proportion among young adults and persons in middle and old age.

Old age, however, is the period of maximum incidence of chronic illness, since the number of the population exposed declines progressively from childhood to old age. The curves of acute and chronic disabling illness by age and sex are shown in chart 5; the annual disabling illness rates are presented in table 3. The

characteristics of the age curve of chronic disabling illness differ essentially from those of the curve of acute illness, which shows a maximum incidence in youth. In general, the incidence of chronic disabling illness in this series is higher among females than among males.²³ A similar excess²⁴ in the prevalence of chronic disease among females was observed in the Massachusetts survey.¹²

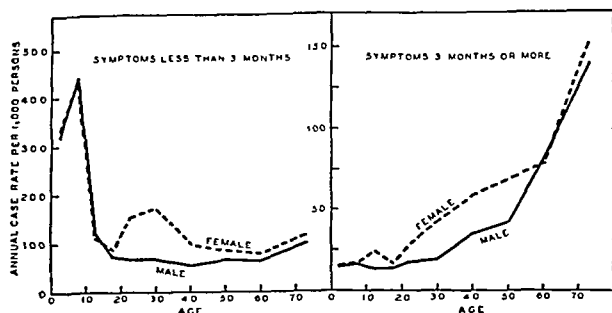


Chart 5.—Age and sex incidence of disabling illness classified in broad groups as acute and chronic—all causes, sole or primary diagnosis only.

Variation in Annual Duration of Disability with Age.—In connection with the variation of chronic illness with age the question arises, To what extent are the most frequent illnesses also the most severe illnesses in terms of annual days of disability. The data presented graphically in chart 6 (table 4) show the effect of distributing the annual days of disability at a given age, first among the total population exposed, including both sick and well persons, and secondly among illnesses in the corresponding age group. Distributed over the entire surveyed population, both sick and well, the average annual amount of disability due to chronic illness is about six days per person compared with three days per person for acute illness.²⁵ An even greater contrast is presented on the basis of sick persons only, the average disabling duration of the chronic case being nearly five months compared with three weeks for the average acute case.

The relation between volume of disability and the total population exposed at a given age closely parallels the variation in age incidence. Persons aged 65 years and over were disabled by chronic illness, on the average, for twenty-seven days during the year, compared with nine days for persons of middle age (from 45 to 64 years), and five days for young adults (from 25 to 44 years). Among the aged, the volume of disability due to patients disabled continuously for twelve months accounts for 65 per cent of the total annual days of disability due to chronic causes. The elimination of these cases of chronic invalidity among persons aged 65 years

and over reduces the average annual days of disability for this age group to nine days per person.

When the average chronic case is considered, the annual days of disability vary from a minimum of slightly over three months per case among children under 15 to a maximum of approximately six months per case for persons aged 65 years and over, with an average of approximately five months per case for persons of all ages. However, the variation in the annual days of disability of the chronic case with age is greatly reduced if cases disabled for twelve months are excluded. The average annual amount of disability per case among persons aged 65 years and over is reduced to slightly over three months by the elimination of cases of chronic invalidity, compared with an average of approximately two and one-half months per case for persons under 15 years of age. The frequency of cases of chronic invalidity among the aged results from the high incidence of the more severely disabling chronic diseases in this age period, a fact which will be brought out in the subsequent consideration of the variation in types of chronic disease with age.

Chronic Disabling Illness Classified by Cause and Age.—Are the specific chronic diseases equally important at all ages, increasing from youth to old age merely in frequency and severity, or do the chronic diseases characteristic of old age differ in type from those predominating in youth or middle age? A consideration of the distribution of chronic disabling cases by cause and age, shown in chart 7, indicates the major importance among the aged of the so-called degenerative diseases, including the cardiovascular-renal group, cancer and diabetes. This group occurs with less frequency in middle age, the proportion for persons aged from 45 to 64 years being 29 per cent, compared with 48 per cent for persons aged 65 years and over. It is notable, however, that 17 per cent of the disabling cases of degenerative disease fall in the young adult period, confirming the indication of mortality rates that the degenerative processes associated with advancing age do not constitute the sole etiologic basis of these diseases. The prevention of the cardiovascular-renal diseases through the control of such diseases as acute rheumatic fever, syphilis, the communicable diseases of childhood

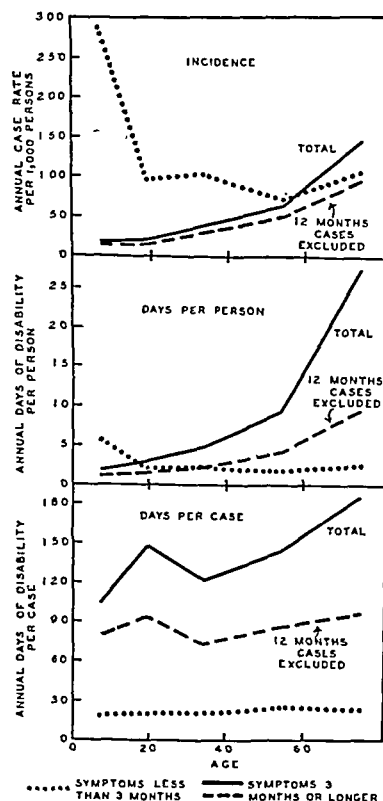


Chart 6.—Incidence and severity of disabling illness classified in broad groups as acute and chronic according to age—all causes, sole or primary diagnosis only. Severity expressed as annual days of disability per person and per case of specified type.

23. It is of interest, to note that the peak in the curve of acute illness among females of the young adult ages, due to the disability associated with childbirth, does not appear in the curve of chronic illness, indicating the effective separation of acute and chronic conditions by classification of illness according to duration of disease symptoms.

24. The sex differential may be explained in part by the greater completeness of illness records for women resulting from the fact that the majority of the informants were women. Thus, Brundage's study of the sickness experience of members of sick benefit associations in which the requirements for eligibility for sick benefits were the same for the two sexes does not show a consistent excess in the female rate for the specific chronic diseases studied. The female rate exceeded the male rate for diseases of the nervous system and cancer, but an excess occurred among males for rheumatism and allied conditions. The rates for the cardiovascular-renal diseases were approximately the same for the two sexes. (Brundage, D. K.: *Sickness Among Industrial Employees: A Summary of the Morbidity Experience from 1920 to 1927*, Pub. Health Rep. #4: 387-403 [Feb. 22] 1929.)

25. The figures are based on the annual days of disability resulting from illnesses disabling for a minimum of seven consecutive days. In the survey of the Committee on the Costs of Medical Care,¹⁴ illnesses of this category accounted for approximately 90 per cent of the total annual days of disability.

and typhoid holds much promise as a method of reducing chronic illness due to this important disease group. Disabling conditions included among orthopedic cases and accidents show the highest proportion of cases among persons of middle age. Nervous and respiratory diseases, on the other hand, show a concentration of cases in the young adult period, with a relatively high proportion of cases under the age of 25 years.

Age Prevalence of Major Orthopedic Impairments.—The proportion of persons having permanent impair-

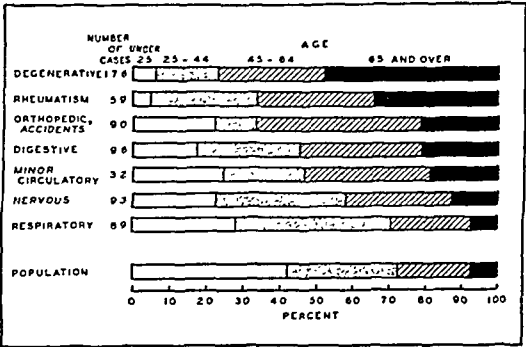


Chart 7.—Percentage distribution of chronic disabling illnesses in certain broad groups by cause and age—sole or primary diagnosis only. Tuberculosis, all forms, is included with respiratory diseases. The distribution of the population by age is presented in table 3.

ments increases with age, since the impairments enumerated are cumulative, representing the effect of disease and injuries incurred in prior years in addition to impairments of current origin. The proportion of persons with major orthopedic impairments is shown in table 5 for certain age groups; the figures are based on both disabling and nondisabling defects.

When major orthopedic impairments were classified by cause for certain broad age groups, it was found that accidents predominated as a cause of impairment among adults, while certain specific diseases, such as poliomyelitis and congenital conditions ranked in importance with accidents as causes of orthopedic defects among young persons. The figures are shown in table 6. Among persons aged 25 years and over the case rate for major orthopedic impairments due to accidents was approximately six times as large as the rate for young persons under the age of 25, while the case rate for major orthopedic impairments due to poliomyelitis was approximately of the same magnitude for young persons and adults. Major impairments of a congenital nature likewise showed no appreciable difference in the case rates for young persons and adults. On the other hand, one of every four impairments of young persons under the age of 25 years was due to poliomyelitis, compared with a ratio of one in ten for adults, while accidents caused approximately one in every five impairments among young persons and one in every two recorded for adults.

Economic Status.—The evidence at hand indicates that the frequency and severity of illness is greater among the poor than among those in the high income groups. Thus, special analysis of the records of the Committee on the Costs of Medical Care showed an inverse relation between income class and annual per capita days of disability.²⁶ In the Massachusetts surveys of 1930 and 1931,¹² the prevalence of chronic disease among persons over 40 years of age showed a consistent increase with decreasing economic status.

While a complete analysis of the relation between social and economic factors and chronic illness must await more extended study of the survey records for additional cities, the experience of the present community is of some interest. The figures shown in table 7 indicate a higher incidence of disabling illness and a larger average amount of disability in the relief groups than in the nonrelief groups, the excess being more marked in the case of chronic than of acute illness. A similar concentration of persons with chronic disabilities in the relief population has been observed in a survey of Dayton, Ohio.²⁷

The disabling illness rates classified by relief status and income for a group of the more seriously disabling chronic diseases are shown in table 8.

The figures indicate that the higher average annual days of disability due to chronic illness observed in the relief population results from the excess in the incidence of the more serious chronic diseases in this low income group.

Chronic Disability as a Factor in Unemployment.—The part played by incapacitating illness and injury of the wage-earner in the creation of family dependency is suggested by a comparison of the incidence of chronic illness among unemployed and employed persons. The figures shown in table 9 indicate a marked excess in the incidence of chronic disabling illness among the unemployed in all income groups;²⁸ on the other hand, there is no difference of statistical significance between

TABLE 5.—Persons with Major Orthopedic Impairments per Thousand

All Ages	Age					
	Under 5	5-14	15-24	25-44	45-64	65 and Over
14.9	2.4	7.6	8.8	10.8	24.0	52.3

TABLE 6.—Major Orthopedic Impairments Classified by Cause for Certain Broad Age Groups (Exclusive of Impairments of Fingers and Toes; Sole, Primary or Contributory Diagnosis)

Age Group	All Causes*	Acci- dents	Polio- myelitis	Congenital Conditions	All Other Diseases†
	Cases per	1,000	Persons		
All ages.....	14.8	6.3	1.9	1.7	4.9
Under 25 years.....	7.4	1.6	1.8	2.1	1.5
25 years and over..	20.4	9.7	1.9	1.5	7.2
	Per Cent of All Causes				
All ages.....	100.0	42.3	12.7	11.6	33.3
Under 25 years.....	100.0	21.4	25.0	23.6	25.0
25 years and over..	100.0	47.0	9.5	7.1	25.5

* The number of cases, all causes, is as follows: under 25 years, 66; 25 years and over, 211.

† Include principally paralysis due to cerebral hemorrhage and other causes, exclusive of poliomyelitis, and impairments due to rheumatism and allied conditions.

the rates of acute disabling illness for the employed and those of the unemployed. The costs of necessary medical services in chronic illness, the immediate wage loss due to disability of long duration and the ultimate

27. Perrott, G. St. J., and Griffin, H. C.: An Inventory of the Serious Disabilities of the Urban Relief Population, *Millbank Memorial Fund Quarterly* 14: 213-241 (July) 1936.

28. In the Health and Depression Study (Perrott, G. St. J., and Collins, S. D.: Relation of Sickness to Income and Income Change in Ten Surveyed Communities, *Pub. Health Rep.* 50: 595-622 [May 31 1935]) a similar excess in the rate of illnesses with onset prior to the survey, largely chronic in nature, was observed for persons in families with no wage-earners.

26. Perrott, G. St. J.: The State of the Nation's Health, *Ann. Am. Acad. Polit. & Social Sc.* 188: 131-143 (Nov.) 1936.

effect of a serious chronic disease on employability are doubtless frequently responsible for the economic disorganization of the family resulting in dependency.

MEDICAL AND NURSING CARE OF THE CHRONIC SICK

The adequacy of medical care in a given community is largely determined by certain external factors such as the availability of medical personnel, the extent of

TABLE 7.—Incidence and Duration of Disabling* Illness Classified by Relief Status and Annual Income (All Causes, Sole or Primary Diagnosis Only; Rates Adjusted for Age)

Relief Status and Income	Annual Disabling* Illness Rate per 1,000 Persons		Annual Days of Disability per Person	
	Acute Illness†	Chronic Illness‡	Acute Illness†	Chronic Illness‡
All incomes\$.....	142	43	3.0	6.2
Relief.....	176	73	3.8	12.1
Nonrelief:				
Under \$1,000.....	140	41	3.1	6.9
\$1,000-\$1,999.....	129	37	2.7	4.4
\$2,000 and over....	160	38	2.9	4.2

* Disabling for seven consecutive days or longer in the survey year.

† Duration of disease symptoms less than three months.

‡ Duration of disease symptoms three months or longer.

§ Includes nonrelief cases with income unknown; the relief status of all cases was known.

TABLE 8.—Annual Disabling Illness Due to Certain Major Chronic Diseases* (Sole or Primary Diagnosis Only)

Relief Status and Income	Rate per 1,000 Persons
Relief.....	45
Nonrelief:	
Income under \$1,000.....	23
Income \$1,000 and over.....	19

* The chronic diseases include the cardiovascular-renal diseases, cancer, diabetes, rheumatism, tuberculosis, all forms, and the nervous and digestive diseases; cases with symptoms of three months' duration or longer. Rates adjusted for age.

hospital facilities, the scope and interpretation of local and state welfare and public health laws and the average income of the population. In the following summary, certain facts relating to the nature and extent of facilities for care of the sick in the surveyed community are presented as a basis for the interpretation of the subsequent discussion:

Physicians²⁹ in the county in which the surveyed community is located showed approximately the same ratio to the population as that obtaining for the country as a whole in 1935.³⁰

General and special hospital facilities²⁹ in the county were definitely higher than the average for the country as a whole in 1935.³¹

Tuberculosis and mental hospital facilities²⁹ in the state were somewhat above the average for the country as a whole in 1935;³¹ however, the beds available per capita for both types of case were approximately 20 per cent lower than the number recommended in a recently proposed standard of adequate care of the tuberculous and the mentally diseased.³² A total of 96 per cent of the beds for mental cases and 81 per cent of the beds for the tuberculous in all institutions in the state were

government owned. Hospitalization of the tuberculous is a function of the health department and is available without the restriction of indigency.

Clinic service for the tuberculous and the venereally diseased is provided by local governmental agencies; a mental hygiene clinic is conducted by a local hospital with the aid of state-subsidized personnel. Patients are admitted to these clinics without restriction as to economic status. An emergency medical and surgical clinic operated by the County Relief Commission provides medical care for the relief population and the medically indigent; 79 per cent of all clinic visits made by residents of the surveyed city and county in 1935 were made to this clinic.³³ An outpatient service for indigent orthopedic cases is conducted by a local hospital with partial reimbursement for service from state and federal funds, the latter made available by the Social Security Act.³³

The survey data do not permit satisfactory comparison of the volume of medical services received by low income groups with that received by groups in which the amount of medical service purchased is not restricted by economic factors, since the size of the sample of persons in the higher income classes is relatively small.

The experience of the surveyed community is obviously an isolated one, applicable only to areas of similar economic level, with health facilities of comparable adequacy. In spite of their limitations the results are of interest as an indication of certain broad problems involved in community care of the chronic sick.

Medical and Nursing Care for Acute and Chronic Illness.—In the surveyed population, care was given by a physician in 79 per cent of all disabling illnesses, both acute and chronic, and hospitalization in 18 per cent during the year preceding the date of the survey. A special analysis of data relating to illnesses disabling for a minimum of six days recorded in the survey of the Committee on the Costs of Medical Care³⁴ indicates that in 86 per cent of these illnesses the care of a physician was given and in 20 per cent hospitalization

TABLE 9.—Incidence of Disabling* Illness Among Males of the Ages 25 to 64, Classified by Employment and Relief Status, and Income—(All Causes, Sole or Primary Diagnosis Only; Rates Adjusted for Age)

Relief Status and Income	Annual Disabling* Illness Rate per 1,000 Persons			
	Acute Illness†		Chronic Illness‡	
	Unemployed§	Employed	Unemployed§	Employed
All incomes.....	64	60	106	20
Relief.....	64	86	90	32
Nonrelief:				
Under \$1,000.....	61	63	117	22
\$1,000 and over||...	66	56	112	18

* Disabling for seven consecutive days or longer in the survey year.

† Duration of disease symptoms less than three months.

‡ Duration of disease symptoms three months or longer.

§ Includes persons on work relief.

|| Includes nonrelief cases with income unknown.

during a twelve months period; the experience of the surveyed community thus shows close agreement with the committee's average figures. In the present survey, the proportion of patients with chronic disabling illnesses attended by a physician or private duty nurse, or hospitalized, was somewhat higher than that for patients with acute illnesses; the comparative figures are shown in table 11. On the other hand, the pro-

33. Data made available by Dr. Joseph W. Mountain from the study of health facilities being conducted under his direction.

34. Falk, I. S.; Klem, M. C., and Sinai, N.: The Incidence of Illness and the Receipt and Costs of Medical Care Among Representative Families, publications of the Committee on the Costs of Medical Care, No. 26, Chicago, University of Chicago Press, 1933.

29. The ratio of population to physicians and hospital beds in 1935 is presented in table 10.

30. American Medical Directory, ed. 14, Chicago, American Medical Association, 1936.

31. Hospital Service in the United States—Fifteenth Annual Presentation of Hospital Data by the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. 106:783-857 (March 7) 1936. Survey of Tuberculosis Hospitals and Sanatoriums in the United States, *ibid.* 105:1855-1915 (Dec. 7) 1935.

32. Falk, I. S.; Rorem, C. R., and Ring, M. D.: The Costs of Medical Care: A Summary of Investigations on the Economic Aspects of the Prevention and Care of Illness, publications of the Committee on the Costs of Medical Care, No. 27, Chicago, University of Chicago Press, 1933.

portion of acute disabling illnesses in which a visiting nurse was in attendance was over twice as high as that in chronic cases.

Routine nursing care incidental to hospitalization was given in hospitalized chronic cases, which represented 29 per cent of all chronic disabling illnesses, but only 6 per cent of all chronic disabling illnesses received nursing care from a private duty or special hospital nurse. In the Massachusetts chronic disease survey,¹²

TABLE 10.—Ratio of Population to Physicians and to Beds in Hospitals Classified by Type, for the United States, and the State and County in Which the Surveyed City Is Located—1935*

Area	Persons per Physician	Persons per Hospital Bed of Specified Type			
		General and Special†	Nervous and Mental	Tuberculosis Special	Tuberculosis Total‡
United States.....	770	325	240	1,812	1,289
State.....	807	279	222	1,349	923
County.....	780	246	884	1,910	§

* See footnotes 30 and 31.

† Exclusive of federal institutions.

‡ Includes beds for the tuberculous in general hospitals; the figures are as of 1934, the latest year for which the data are available.

§ Data not available.

private bedside nursing care was also found to assume a relatively unimportant rôle in the care of the chronic sick.³⁵

The burden of chronic disease in lost time and cost of medical and nursing care may be inferred from the comparison of services for acute and chronic illnesses presented in table 11 and shown graphically in chart 8. While only approximately one fourth of the disabling cases and somewhat over one third of the hospitalized cases were chronic illnesses, these cases accounted for over two thirds of the total days of disability experienced by the surveyed population and four fifths of the total days of hospitalization. Expressed in terms of annual hospital days per case, in the average acute case only nine days of hospital care was given during the year, compared with sixty-three days in the average chronic case exclusive of old cases hospitalized throughout the entire twelve months period. A similar disparity exists between the proportion of acute and chronic illnesses among physicians' and private nurses' patients and the relative volume of physicians' calls and bedside nursing days given in acute and chronic illness. Only 25 per cent of the illnesses attended by private or clinic physicians were chronic, but 51 per cent of the physicians' annual services were received by the chronic sick. Chronic cases represented only 35 per cent of all illnesses in which private bedside nursing care was given but absorbed 71 per cent of the annual bedside nursing days. In the case of visiting nurse care, however, patients with acute illnesses predominated among those attended and also received the major volume of annual services.

A comparison of the proportion of medical services received by patients with the various chronic diseases, shown in table 12, indicates that the supply of medical care is adjusted to the severity of the case. A total of 71 per cent of all physicians' calls in chronic cases were received by patients with the major chronic diseases—

the cardiovascular-renal group, cancer, diabetes, tuberculosis, the nervous and digestive diseases, rheumatism and the group including orthopedic cases and accidents. A notable difference is observed in the type of chronic case predominating among hospitalized cases. Orthopedic cases and accidents, cases of nervous disease and tuberculosis account for 74 per cent of the total hospital days in all chronic cases, indicating the recognized importance of institutional care in cases of this type, and the relatively extensive hospital facilities available to residents of the surveyed community.

While the small number of chronic cases in which nursing care was given in the surveyed community limits the extent of the analysis of data on nursing care, certain important facts may be noted. During the survey year, a total of 2,533 days of bedside nursing care was given in forty-six chronic disabling illnesses, representing an average of fifty-five bedside nursing days per chronic case attended. Visiting nurses made 387 visits to forty-one chronic cases during the survey year, an average of approximately nine visits a case. Chronic cases of the degenerative and digestive diseases, nervous and orthopedic cases, and accidents absorbed approximately three fourths of the total annual bedside nursing days and one half of the total annual visits of visiting nurses which was given in all chronic disabling illnesses.

Variation in Medical Services with Relief Status and Income.—It has already been noted that medical care of the indigent in the surveyed community was provided by an organized clinic serving the relief population and the medically indigent. We therefore anticipate more adequate medical care among the poor in this emergency period than would prevail under the system of welfare administration operating in normal times. The figures in table 13 show the effect of the local system of medical relief; the average person on relief, including both sick

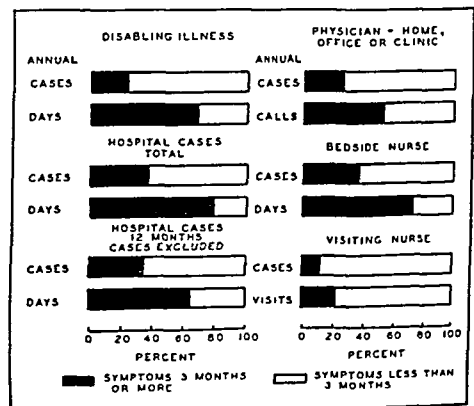


Chart 8.—Relative volume of medical and nursing services received for acute and chronic illness—percentage distribution of cases, days of disability and medical and nursing services classified by duration of symptoms.

and well, received more care for chronic illness from a private or clinic physician than the average person in the nonrelief population, with the exception of the highest income class. However, the relief population was found to receive less home care, the average number of home calls per person on relief being approximately one half the average for each person in the highest income class. When medical services for the various income classes are compared on the basis of the average chronic case attended, the relief population again shows a definitely lower average of care by a physician than the group with an income in excess of \$2,000;

35. In 7 per cent of all illnesses recorded in the survey of the Committee on the Costs of Medical Care³⁴ the care of a private duty, practical or visiting nurse was given; the figure relates to all illnesses, both non-disabling and illnesses disabling for one day or longer. Data from this survey on nursing care for illnesses disabling for a minimum of six days have not been tabulated.

however, approximately the same amount of care by a physician was given in the average chronic case in the relief group as in the average case in the nonrelief "middle" income classes with incomes under \$2,000.

Persons in the low income groups received more hospital care for chronic illness than those in the upper income groups, measured both in terms of the average person exposed and the average patient hospitalized. The lower average of physicians' calls observed in the groups with incomes under \$2,000 is thus compensated for in part by the higher average of medical care received during hospitalization. The excess in the aver-

disease little organized supervision is given, with the exception of the local outpatient service available for the tuberculous, the syphilitic and the orthopedic and mental patients and the casual care provided for the relief population by the emergency relief clinic. Hospitalized chronic patients, with the exception of the tuberculous and the mentally diseased, are cared for in local general hospitals, since facilities in institutions specifically adapted to the requirements of the chronic sick are not available. There is no public agency responsible for the integration of services for the treatment of the chronic sick among the dependent groups of the popu-

TABLE 11.—Annual Medical and Nursing Services Received for Disabling* Illness Classified as Acute† and Chronic‡ (Sole or Primary Diagnosis Only)

Type of Care	Per Cent of All Disabling* Illnesses of Specified Type Receiving Care			Disabling* Illnesses or Annual Services of Specified Type as per Cent of All Disabling Illnesses or Total Annual Services				Number of Disabling* Illnesses or Annual Services of Specified Type			
				Illnesses		Services		Illnesses		Services	
				Total	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic
	(All illnesses = 100%)		(All services = 100%)								
	Physician, total§.....	79	76	85	75	25	49	51	1,969	663	8,499	8,937
Hospital, total.....	18	15	29	62	38	20	80	375	225	3,500	14,180
Hospital, 12 months' cases excluded.....	17	15	26	65	35	33	67	375	205	3,500	6,980
Private bedside nurse||.....	4	3	6	65	35	29	71	84	46	1,027	2,533
Visiting nurse.....	10	12	5	88	12	77	23	309	41	1,819	387
Disabling illness.....	100	100	100	77	23	32	68	2,576	778	53,512#	113,114#

* Disabling for seven consecutive days or longer in the survey year.

† Duration of disease symptoms less than 3 months.

‡ Duration of disease symptoms three months or longer.

§ Includes services in home, office or clinic.

|| Includes special nursing care received by hospitalized cases.

Annual days of disability.

TABLE 12.—Medical Care for Chronic Disabling* Illness Due to Certain Causes (Sole or Primary Diagnosis Only)

Diagnosis	Physicians' Calls, Total†		Hospital Days		Number of Cases		Number of Chronic Disabling* Illnesses
	Total Calls,† per Cent	Calls per Case Attended	Total Hos- pital Days,† per Cent	Days per Hospital Case	Physi- cians'	Hospital	
Degenerative diseases, total.....	27	14	12	58	166	27	176
Cardiovascular-renal diseases.....	21	13	6	73	139	11	146
Cancer.....	4	23	2	24	14	10	14
Diabetes.....	2	9	4	87	13	6	16
Nervous diseases.....	10	14	49	231	64	30	93
Digestive diseases, except hernia.....	11	13	3	17	78	24	82
Orthopedic cases, accidents.....	17	21	10	40	74	35	90
Tuberculosis, all forms.....	1	10	15	189	12	11	19
Minor circulatory diseases.....	4	12	0.3	5	27	10	32
Respiratory diseases.....	6	10	0.9	16	56	8	70
Rheumatism.....	5	9	0.7	24	49	4	59
Hernia.....	1	7	1	16	10	10	14

* Disabling for seven consecutive days or longer.

† Includes home, office or clinic calls.

‡ Total services for all chronic disabling illness = 100 per cent.

age number of hospital days for the low income groups is greatly reduced by the exclusion of cases in institutions throughout the survey year. The liberal policy of the state in the care of the tuberculous and the high proportion of government-owned beds in hospitals for the tuberculous and the mentally diseased are reflected in the more favorable hospital experience of chronic cases in the low income groups.³⁶

COMMUNITY ORGANIZATION FOR THE CONTROL OF CHRONIC DISEASE

The surveyed community has no coordinated plan for the care of the chronic sick. In early cases of chronic

lation. The large volume of hospital care absorbed by chronic cases, particularly among the low income groups, suggests the need for such centralized supervision, to the end that hospital care may be restricted to cases requiring institutionalization, while in other appropriate cases care in the home may achieve more effective results from the standpoint of treatment and its cost to the community.

SUMMARY

The United States Public Health Service has assembled reports of chronic disease and gross impairments in some 3,000,000 persons in ninety-two representative localities canvassed in 1935-1936, supplementing its observations on the prevalence and incidence of disabling illness with information on the present status of health department practice and the extent of local facilities for the care of the sick in the surveyed areas.

36. A high average amount of hospital care in the lowest income class has been previously observed. In the survey conducted by the Committee on the Costs of Medical Care,³¹ the lowest income class showed the highest average hospital days per person when the volume of hospital care in general and special hospitals was compared; exclusion of tuberculosis sanatoriums and mental hospitals resulted in a maximum for the class with an income over \$10,000, but the average hospital days per person for the lowest income class exceeded the figure for all other classes with incomes under \$10,000.

The results of the present preliminary report on a northern industrial city may be summarized as follows:

1. Approximately one in every five persons canvassed was reported to have a chronic disease, a serious defect of vision or hearing or a permanent physical impairment resulting from disease or injury.

TABLE 13.—*Medical Services for Chronic Disabling* Illness, Classified by Relief Status and Income (All Causes, Sole or Primary Diagnosis Only)†*

Relief Status and Income	Annual Services per Person				Annual Services per Case of Specified Type			
	Physicians' Calls		Hospital Days		Physicians' Calls		Hospital Days	
	Totals	Home	Total	12 Mo. Cases Excluded	Totals	Home	Total	12 Mo. Cases Excluded
All incomes.....	0.49	0.28	0.78	0.39	13	10	63	34
Relief.....	0.68	0.25	1.24	0.69	13	7	71	44
Nonrelief:								
Under \$1,000...	0.48	0.26	1.18	0.43	13	9	102	45
\$1,000 to \$1,999.	0.34	0.20	0.53	0.26	11	9	51	28
\$2,000 and over	0.74	0.56	0.27	0.27	21	20	18	18

* Disabling for seven consecutive days or longer.

† The figures for illnesses, physicians' calls, hospital days and population on which this table is based, are presented in table 14.

‡ Includes cases and persons with income unknown.

§ Total physicians' calls include home, office or clinic services.

2. The problem of chronic disease reaches its greatest severity among the relief population and the aged. In the total population, one in every twenty-five persons had been disabled by chronic disease for one week or longer in the survey year; in marked contrast are the corresponding ratios of one in fourteen for the relief population, and one in eight for persons aged 65 years and over. Continuous disability for a period of twelve months or longer, due to a chronic disease or gross impairment, was reported by one in every 100 persons

were chronic, these cases accounted for over two thirds of the total annual days of disability recorded for the surveyed population and for four fifths of the annual hospital days. Chronic cases likewise absorbed one half of the annual services of physicians and almost three fourths of the annual bedside nursing days, although acute illnesses predominated among cases attended.

5. The types of chronic disease found to be most seriously disabling were the cardiovascular-renal group, cancer, diabetes, ulcer of the stomach and chronic diseases of the gallbladder, rheumatism, tuberculosis and the nervous diseases.

6. Permanent major orthopedic impairments, the result of both current and prior accident and disease, were reported by approximately one in 150 young persons under the age of 25 and by one in fifty adults aged 25 and over. One in every four major orthopedic impairments in young persons under the age of 25 was due to poliomyelitis, compared with a ratio of one in ten for adults; accidents caused one half of these impairments recorded for adults but only one in five impairments in young persons under the age of 25.

7. The favorable effect of the local system of emergency medical relief was apparent in the relatively large volume of physicians' services received by the average person in the relief population. However, the higher incidence of chronic illness in the relief group resulted in less care by a physician for the average chronic case than was given in the average case in the nonrelief population.

8. The surveyed city, in common with most American communities, has no coordinated plan for the control of chronic disease. The inertia of the community in the face of this major health problem results from lack of awareness of its magnitude, a situation arising in turn from the paucity of factual information concerning

TABLE 14.—*Annual Medical Services for Chronic* Disabling† Illness, Classified by Relief Status and Income (All Causes, Sole or Primary Diagnosis Only)*

Relief Status and Income	Physicians', Total‡		Physicians', Home		Hospital, Total		Hospital-12 Months' Cases Excluded		Number of Chronic* Disabling† Illnesses	Population
	Cases	Calls	Cases	Calls	Cases	Days	Cases	Days		
All incomes.....	663	8,937	488	5,041	225	14,180	205	6,980	776	18,130
Relief.....	173	2,244	112	827	58	4,106	53	2,306	203	3,321
Nonrelief:										
Under \$1,000.....	172	2,275	134	1,257	55	5,636	45	2,036	213	4,705
\$1,000-\$1,999.....	207	2,301	155	1,376	70	3,595	65	1,795	234	6,801
\$2,000 and over.....	83	1,374	66	1,316	35	638	35	638	94	2,355
Income unknown.....	28	374	21	265	7	205	7	205	34	871

* Duration of disease symptoms three months or longer.

† Disabling for seven consecutive days or longer in the survey year.

‡ Includes home, office or clinic services.

of all ages, while among the aged, one in every twenty persons had been a chronic invalid for at least twelve months.

3. The severity of chronic disability in the relief population reflects the inability of wage-earners in the low income groups to cope with the burden of unemployment due to incapacitating illness and injury. On the day of the canvass, approximately one in ten of the unemployed heads of families were unemployed because of disability. Approximately one in every ten unemployed males between the ages of 25 and 65 had been disabled by chronic disease for one week or longer in the survey year, while employed males of these ages were disabled in the ratio of one in fifty.

4. The burden of chronic disease in lost time and cost of medical and nursing care is indicated by the fact that while only one fourth of the disabling illnesses, and somewhat over one third of the hospitalized cases

the specific burden of chronic disease. By defining the problem in relation to the social and economic groups and the geographic areas in which it is most acute, the final analysis of the entire volume of data collected in the health survey should provide a basis for concerted community action in the control of chronic disease.

Delegated to Correlate the Teaching in Science.—We have gained much for science but have lost much for practice by the course we are following, and I look forward to a time when the pendulum will swing back, not to a day when the spirit of research will be any less active, but to a day when suitable representatives of the clinical departments will be delegated to correlate the teaching in the science courses so that their bearing on what is to come may be constantly kept in mind. A course in pure science unrelated to the patient belongs rather in the college than in the medical school.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

Council on Pharmacy and Chemistry

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association held its annual meeting at the Association headquarters, Friday and Saturday, March 12 and 13, 1937. Those present were:

Dr. David Barr	Dr. Paul Nicholas Leech
Dr. J. Howard Brown	Dr. G. W. McCoy
Dr. S. W. Clausen	Dr. E. M. Nelson
Dr. H. N. Cole	Dr. W. W. Palmer
Dr. C. W. Edmunds	Dr. William C. Rose
Dr. Morris Fishbein	

Dr. James S. McLester, member of the Council on Foods, and Dr. Olin West, General Manager, were also present.

Dr. Torald Sollmann was reelected chairman of the Council and Dr. W. W. Palmer was reelected vice chairman.

Among the many items discussed during the meeting, the following may be of interest both to physicians and to manufacturers:

A. M. A. Interns' Handbook.—The revision of "Hospital Practice for Interns" was discussed by the Council: details as to the general type of revisions to be made, format and other matters. The secretary of the Council on Medical Education and Hospitals reported that that council would be pleased to cooperate in the revision. The Council voted to change the name from "Hospital Practice for Interns" to "A. M. A. Interns' Handbook."

Brochures Issued by Pharmaceutical Houses.—There has recently been a tendency on the part of certain pharmaceutical firms to issue brochures advising the profession on the status of certain diseases and making recommendation for therapeutic treatment. In such brochures a certain drug is extolled, frequently to the exclusion of other therapeutic measures. The members of the Council felt that comprehensive reviews of medicine, surgery or the specialties are the function of duly qualified persons who undertake the task from altruistic motives rather than for the purpose of advocating the sale and use of particular commercial products. The members of the Council recognize the usefulness of educational brochures when prepared under proper auspices and with proper restrictions. The Council voted that the Committee on Rules and Procedure be instructed to bring before the Council a statement on this subject, with a view to including it in the explanatory notes of the rules of the Council.

Vitamins.—As announced previously, the Council on Pharmacy and Chemistry, in cooperation with the Council on Foods, has decided to sponsor a series of articles on vitamins. The Council voted that the proposed outline of the articles and the suggested authors be approved. It is anticipated that this series will be published in *THE JOURNAL* early in 1938.

Viosterol Preparations.—The Council's definition of Viosterol appears in the monograph under that heading in New and Nonofficial Remedies. The Council voted to amend this monograph, especially with reference to the definition, to read as follows:

"Investigations dealing with the chemistry and physiology of vitamin D led to the demonstration that ergosterol acquires antirachitic activity when subjected to ultraviolet irradiation. Ergosterol is a widely distributed plant sterol that was first isolated from ergot and the compound can readily be prepared from yeast. In 1929 the Council adopted the term 'Viosterol' to designate irradiated ergosterol. Since that time it has been demonstrated that other physicochemical processes may be used to change ergosterol to a product similar in physiologic, physical and chemical properties to irradiated ergosterol. Such forms of activated ergosterol, and irradiated ergosterol prepared by modifications of the original method, are designated as 'Viosterol' followed by a designation of the process used in their preparations. The term 'Viosterol in Oil' is used to designate viosterol dissolved in edible vegetable oil.

Therapeutically viosterol is a form of vitamin D and claims for this product are limited to the allowable claims for this vitamin given in the preceding general article, Vitamins and Vitamin Preparations for Prophylactic and Therapeutic Use.

It should be borne in mind that viosterol does not contain vitamin A and that harm from hypercalcemia may result from the use of excessive doses of the substance."

The Council believed this action necessary because activated ergosterol preparations made by processes other than ultraviolet irradiation (the Steenbock process) are being introduced. The Council voted however that, until such time as the products are proved to be chemically identical with that produced by ultraviolet irradiation or proved to be the isolated vitamin itself, a modifying phrase shall be included in the names, thus: "Viosterol (John Doe Process) in Oil."

Nomenclature for Vitamin B₁.—The Council considered the name "Thiamine Chloride," proposed by Dr. R. R. Williams, New York, as a designation for the crystals of vitamin B₁ hydrochloride. The Council tentatively approved the name but felt that Dr. B. C. P. Jansen of Utrecht, Netherlands, should be consulted before such a term is accepted. The Council wishes to accept a name satisfactory to Drs. Jansen and Williams which at the same time meets the objection of the Council to therapeutically suggestive names.

Cod Liver Oil in Malt Preparations.—The Council has ruled that if the vitamins are present in sufficient amounts to be therapeutically active, it is irrational to administer a preparation containing a combination of several vitamins, for instance, B and G with A and D. On the other hand, if the vitamins in the product are not present in therapeutically significant amounts, they should not be declared on the label in such a manner as to lead to the belief that they are therapeutically valuable. In accordance with this rule a concern was notified that it could not claim the presence of vitamins B and G in its cod liver oil and malt preparation since this preparation in question did not contain these vitamins in significant amounts. The firm, on the other hand, felt that since it had prepared its product with such care that it contained vitamins B and G it was entitled to mention them without claims for use in treatment. It was voted that cod liver oil and malt preparations be permitted to declare on the label that the product contains vitamins B and G but that it also be stated in connection with such declaration exactly what the vitamin B and G content is in terms of international units per gram, and that no other representations for vitamins B and G may be made.

Food and Drug Legislation.—The Council voted to reaffirm the statement published two years ago containing its platform on the revision of food and drug laws (*THE JOURNAL*, Jan. 12, 1935, p. 125).

Aminophylline.—The Council decided that after October 5 the therapeutic claims for all accepted products of aminophylline should be restricted to those recommending it for its diuretic effect and as a myocardial stimulant. The Council is of the opinion that there is no satisfactory evidence to show that aminophylline or other known theophylline preparation acts as a dilator of the coronary arteries or has an appreciable effect in reducing the pain of angina pectoris.

Insulin Preparations.—The Council discussed extensively the recent work on insulin compounds, in order to be in a position to pass on future developments. No action was taken.

Solution of Epinephrine 1:100.—The Council has been hesitant in accepting a solution of epinephrine 1:100 for fear that hazards might arise in the use of a preparation ten times as active as the usual solution of epinephrine 1:1,000. A number of questionnaires were sent out to consulting clinicians in reference to the problem. The Council voted that solution of epinephrine 1:100 be recognized for inclusion in New and Nonofficial Remedies, provided the advertising of firms submitting brands is conservative and contains warning statements.

Oral Vaccines.—The status of oral vaccines was reviewed by the Council. The Council was informed that a report on the literature had been prepared and was available. The Council asked that this report, augmented to include the most recent references, be presented for its consideration with view to sponsorship of a published statement.

Aminopyrine.—The Council is disturbed by the continued excessive claims for aminopyrine, particularly the recommendations for its use in dysmenorrhea, because of the danger of agranulocytosis arising from its use by some individuals. The Council voted to reaccept certain brands of aminopyrine with the understanding that all advertising shall include a suitable warning irrespective of where published and that the use of the drug in dysmenorrhea be not recognized as an acceptable recom-

mendation. The Council adopted the following statement to be included in N. N. R. 1938:

"Aminopyrine appears to produce serious and sometimes fatal granulocytopenia especially in susceptible individuals. The drug should therefore be withdrawn if a skin eruption, dizziness or chill occurs; it should not be administered in large doses or over a long period of time unless repeated leukocyte and differential counts are made at regular intervals. The drug should not be used in the treatment of dysmenorrhea."

Catgut Sutures.—The Council was notified that the Board of Trustees had provided an additional appropriation for the use of the Council in the investigation of catgut sutures. The Council authorized the Committee on Catgut Sutures to make a further report on the market supply of ligatures. The Council also recommended that the Board of Trustees urge the passing of suitable legislation placing the responsibility of control of catgut sutures under an appropriate government agency.

Therapeutic Research.—The report of the Council on Therapeutic Research (*THE JOURNAL*, May 1, 1937, p. 1535) was received and expression of appreciation conveyed to the members of the Committee for the work done.

Control and Administration of Patents.—The Council discussed extensively the patent situation in the United States and particularly certain cases in which patents are held by organizations for purposes of licensing. The Council voted that a report be formulated for consideration with view to publication.

Reports of Committees on Publications of the Council on Pharmacy and Chemistry.—The Council considered the reports in reference to the *Epitome of the Pharmacopeia* and *National Formulary*, *Useful Drugs*, and *Glandular Therapy*. It was gratifying to note the unprecedented response on the part of the profession and students to the issuing of these books, as well as to *New and Nonofficial Remedies*.

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
PAUL NICHOLAS LEECH, Secretary.

SULFANILAMIDE AND RELATED COMPOUNDS

The Council on Pharmacy and Chemistry, noting the variety of proprietary names for para-amino-benzene-sulfonamide, adopted the term "Sulfanilamide" as a nonproprietary name for this chemical (*THE JOURNAL*, April 17, p. 1340). The Council decided that it was advisable to issue a report on the present status of this substance and the related compounds which are used for similar purposes. Subsequently, several brands of the chemical were submitted to the Council under the name Sulfanilamide, and Winthrop Chemical Company submitted its brand under the name Prontylin. These brands will be the subject of reports to be issued later.

The following firms have submitted Sulfanilamide: Calco Chemical Co., Inc., Lederle Laboratories, Inc., Eli Lilly and Company, Inc., Merck & Co., Inc., Parke, Davis & Company and E. R. Squibb & Sons.

For the purpose of discussion and because of the confusing terminology for the related compounds, the following terms are defined:

Sulfanilamide: The nonproprietary name adopted by the Council for para-amino-benzene-sulfonamide, also known as para-amino-phenyl-sulfonamide, Prontylin (Winthrop) and Prontosil Album (Bayer). It is also marketed under the following names: Stramid (Alba Chemical Company), Streptocide (Evans Sons Lescher & Webb, Ltd., London), Colsulanyde (Crookes Laboratories, London), Sulfamidyl (Abbott Laboratories) and Sulphonamid P (Burroughs, Wellcome & Co.). It is regretted that certain firms in America are using proprietary names.

Prontylin: Sulfanilamide. The proprietary name of Winthrop Chemical Company, Inc., for its brand of Sulfanilamide.

The original Prontosil:¹ This chemical is the hydrochloride of 4-sulfamido-2':4'-diaminoazobenzene. It has a solubility in water of 0.25 per cent and was marketed in the form of red tablets.

Prontosil: A name applied in this country by the Winthrop Chemical Company to the red dye, the disodium salt of 4-sulfamido-phenyl-2'-azo-7'-acetyl-amino-1'-hydroxynaphthalene-3':6'-disulfonic acid, which is referred to in European literature as Prontosil Soluble (Prontosil S.) and Streptozon S. The Winthrop Chemical Company, Inc., does not market its Prontosil in powdered form but does market Prontosil solution containing 2.5 per cent of the red dye.

Rubiazol: A compound used by the French workers, which is stated by the Winthrop Chemical Company to have been a French duplicate of the original Prontosil.

Experimental work on the therapeutic use of these compounds started with the work of Domagk,² who studied the effect of the original Prontosil on mice infected with hemolytic streptococci of human origin. A general review of subsequent studies on related compounds administered to mice as well as to human beings has been the subject of two editorials in *THE JOURNAL*.³ Because of their greater solubility, convenience of administration, lesser toxicity and the more favorable results obtained, Prontosil Soluble and Sulfanilamide rather than the original Prontosil have been used in most of the recent experiments. In fact, it has been suggested that the anti-streptococcal activity of the azo compounds, Prontosil and Prontosil Soluble, is a result of their being reduced in vivo or in vitro into Sulfanilamide, which seems to be the active compound,⁴ although Gley and Girard find the activity of one azo derivative inexplicable by the hypothesis that para-amino-benzene-sulfonamide is the only active derivative. (*Presse méd.* 44:1775 [Nov. 11] 1936.) It so happens that Sulfanilamide is suitable for administration to human beings either parenterally or orally. When administered subcutaneously or orally it appears as such in the blood stream within a few hours, and at a somewhat lower concentration in the cerebrospinal fluid. There is evidence which indicates that in man it is excreted in the urine, partly as Sulfanilamide and partly in a conjugated form, probably para-acetylaminobenzene-sulfonamide.⁵

The nature of the antibacterial action of Sulfanilamide is not yet completely understood. Long and Bliss⁶ report that Sulfanilamide in dilutions of 1:10,000 or more is bacteriostatic in vitro for at least some strains of beta-hemolytic streptococci and to a less degree for some other organisms; they found Prontosil Soluble without bacteriostatic activity in vitro. Later Bliss and Long⁴ found Prontosil Soluble after reduction with cysteine hydrochloride to be bacteriostatic in vitro. Attempts to demonstrate a bacteriostatic activity of the blood of patients after treatment with these products are open to question because of the bactericidal effect of serum from patients with hemolytic streptococcus infection.⁷

Since the therapeutic activity of Sulfanilamide seems to be dependent on its presence in adequate concentration in the blood, the rational method of treatment, and the one that has yielded good results in the cases reported, is the administration of relatively large initial doses followed by smaller doses sufficient to maintain an adequate level of the drug in the blood of the patient over a considerable length of time. Long and Bliss⁸ regard 10 mg. of Sulfanilamide per hundred cubic centimeters of blood as a satisfactory level. Marshall, Emerson and Cutting⁹ have described a rapid method for determining

2. Domagk, Gerhard: *Deutsche med. Wchnschr.* 61:250 (Feb. 13) 1935.

3. Chemotherapy in Streptococcal Infections, editorial, *J. A. M. A.* 108:48 (Jan. 2) 1937; Treatment of Streptococcal Infections with Sulfanilamide, *ibid.*, March 20, p. 976.

4. Tréfouël, J.; Tréfouël, J. (Mme.); Nitti, F., and Bovet, D.: *Compt. rend. Soc. de biol.* 120:756, 1935. Colebrook, Leonard; Buttle, G. A. H., and O'Meara, R. A. Q.: *Lancet* 2:1323 (Dec. 5) 1936. Fuller, A. T.: *ibid.* 1:194 (Jan. 23) 1937. Bliss, Eleanor A., and Long, P. H.: *Bull. Johns Hopkins Hosp.* 60:149 (Feb.) 1937.

5. Marshall, E. K., Jr.; Cutting, W. C., and Emerson, Kendall, Jr.: *Science* 85:202 (Feb. 19) 1937.

6. Long, P. H., and Bliss, Eleanor A.: *Para-Amino-Benzene-Sulfonamide and Its Derivatives*, *J. A. M. A.* 108:32 (Jan. 2) 1937.

7. Tillet, W. S.: *J. Exper. Med.* 65:147 (Jan.) 1937.

8. Long, P. H., and Bliss, Eleanor A.: Personal communication.

9. Marshall, E. K., Jr.; Emerson, Kendall, Jr., and Cutting, W. C.: *Para-Aminobenzene-sulfonamide*, *J. A. M. A.* 108:953 (March 29) 1937; Marshall, E. K.: *Proc. Soc. Exper. Biol. & Med.* 36:245 (April) 1937.

1. It is unfortunate that the term "Prontosil" is used in this country for a compound not identical with the product which has been sold in Europe under the same name. This leads to much confusion in the medical literature.

the Sulfanilamide in the blood and urine, thus affording a means of controlling the dosage so as to maintain a desired concentration of the drug in the blood. That it may be important to do so is illustrated by a case in which there was failure to respond satisfactorily to Sulfanilamide given orally. Analysis of the blood showed that only small amounts of the drug were being absorbed. Therefore Sulfanilamide in physiologic solution of sodium chloride (0.8 Gm. of sulfanilamide powder in 100 cc. of physiologic solution of sodium chloride, heated to 90 C. until solution is effected, then cooled to 37 C. and used at that temperature) was injected subcutaneously and was followed by a prompt and satisfactory clinical response. There are probably differences in the rate of absorption of the drug from the gastro-intestinal tract by different individuals.

Either Prontosil Soluble or Sulfanilamide is quite rapidly absorbed. Colebrook and Kenny¹⁰ came to the conclusion that there is little or no reason for injecting the drugs intravenously. Marshall, Emerson and Cutting⁹ found that "in dogs, the concentration in the blood does not mount more quickly or attain a higher level with subcutaneous administration [of Sulfanilamide] than with oral." The only occasion for parenteral administration would seem to be in those cases in which oral administration is impracticable. It may also be advisable to use the parenteral route for at least a part of the drug when large doses are being given and when nausea may be produced by oral administration.

Long and Bliss¹¹ have employed during the first twenty-four hours of treatment maximum doses of 120 cc. of Prontosil Soluble (2.5 per cent solution) (1 cc. for each pound of body weight) or 5 Gm. of Sulfanilamide (1 Gm. for each 20 pounds, or 9 Kg., of body weight) and when Prontosil Soluble was used parenterally and Sulfanilamide orally the total dose has been correspondingly divided between the two products. They found such doses effective, although some clinicians have used larger doses¹² and Colebrook and Kenny¹⁰ employed smaller doses. It should be noted that theoretically 100 cc. of Prontosil Soluble (2.5 per cent solution) should yield only 0.73 Gm. of Sulfanilamide if completely and quantitatively broken down. A great disproportion in the amounts of these two drugs recommended is therefore obvious. More exact clinical and experimental data are required to determine the therapeutic equivalence of the drugs.

When given in the doses mentioned, the immediate toxic effects of the drugs have not been particularly alarming but as with the use of any drug, especially when new, caution in administration is necessary. A variable degree of transient nausea sometimes accompanies the oral administration of Sulfanilamide and it may be necessary in some cases to inject a properly prepared solution of Sulfanilamide (powder), or Prontosil Soluble. Probably a certain degree of acidosis occurs in all patients receiving the drugs.¹³ Many cases of cyanosis occasionally associated with sulfhemoglobinemia have been observed. The association of this condition with saline cathartics is not fully established. Rarely jaundice may occur. Pyrexia also frequently occurs and it is important "to differentiate between fever produced by the infection and fever produced by the chemical."¹¹ There have been unreported cases of acute hemolytic anemia and agranulocytosis in cases treated with Sulfanilamide, although the relation of the drug to these conditions was not fully established. Marshall, Emerson and Cutting⁹ state that "In patients with impaired renal function, the sulfonamide appears to be excreted more slowly. Until more data are available it should be given with care in all cases of renal insufficiency." The toxic effects of prolonged administration of the drug are unknown. Long and Bliss¹¹ reported recurrence of hemolytic streptococcus infection in mice after apparent recovery and as late as sixty days after the administration of Prontosil Soluble had been discontinued. Since mice are much more susceptible to virulent hemolytic streptococci than is man, the survival of very few of these organisms might be expected to bring about such a result. Even though such occurrences may be less frequent in human

patients, it would appear inadvisable to discontinue treatment too soon. The patient should be kept under observation and treatment restored on any evidence of recurrence of the infection.

There is rapidly increasing evidence that Sulfanilamide and its derivatives are useful therapeutic agents in the treatment of infections with beta-hemolytic streptococci, both local and generalized. A bibliography of published reports will be found in the article by Long and Bliss.¹¹ It must be borne in mind that there are many different kinds of beta-hemolytic streptococci. Lancefield¹⁴ and Hare¹⁵ recognize nine serologic "groups," and each of these groups may be serologically subdivided into several "types." The hemolytic streptococci causing most of the acute and severe infections in man belong to group A. It is with the streptococci of this group that the reported experiments in mice and in vitro have been done. Undoubtedly most of the human cases treated were infections with group A streptococci. Certain members of group B, C, D, F and G have also been found in human infections, although most strains of these groups are probably rightly regarded as nonpathogenic for man. Colebrook and Kenny¹⁰ report one case of group B infection successfully treated and one case of group G infection unsuccessfully treated. Long and Bliss¹¹ report the treatment of one case of group B infection in which a relapse occurred one week after discontinuance of Prontosil Soluble administration. It is highly desirable that in the study of the treatment of more cases adequate bacteriologic studies be reported. This is further emphasized by the observations that the treatment of mice infected with hemolytic streptococci of low mouse virulence was unsuccessful.¹⁶ No success has been reported for the treatment of infections due to alpha and nonhemolytic streptococci. Proom¹⁷ reports the protection with Sulfanilamide of mice infected with meningococci. At the time of the preparation of this report there were certain unpublished reports of the usefulness of the drug in cases of human infection with meningococci, gonococci and certain types of pneumococci. Some of these have since been published.¹⁸

Since there is adequate evidence that Sulfanilamide is an effective drug for the treatment of grave hemolytic streptococcus infections which are often fatal, its use for such cases appears to be justified although the ultimate toxic effects of the drug are not yet fully known. It is important, however, that it should not be used indiscriminately. It is not a panacea. Whenever possible its use should be determined by adequate bacteriologic diagnosis. If in practice it is sometimes impracticable to obtain bacteriologic diagnosis before beginning treatment and the patient is acutely ill with what appears clinically to be a hemolytic streptococcus infection, initiation of treatment may be justified but, until more is known of the untoward effects of the drug, treatment should probably be discontinued if the infection proves to be due to other than hemolytic streptococci.

CONCLUSIONS

The original Prontosil (hydrochloride of 4-sulfamido-2':4'-diaminoazobenzene) is not considered. Although this is the original product investigated and found to be of therapeutic value, it is not being promoted because Prontosil Soluble and Sulfanilamide are considered to be superior products.

It seems doubtful whether the Winthrop Chemical Company is justified in using the name "Prontosil" for Prontosil Soluble (disodium salt of 4-sulfamido-phenyl-2'-azo-7'-acetyl-amino-1'-hydroxynaphthalene-3':6'-di-sulfonic acid), since the name has already been used for the previously named compound. It may be granted that Prontosil Soluble (2.5 per cent solution) has been shown to be therapeutically useful in many hemolytic streptococcus infections, but apparently it has no demonstrated

10. Colebrook, Leonard, and Kenny, Méave: *Lancet* 1: 1279 (June 6) 1936.

11. Long, P. H., and Bliss, Eleanor A.: Para-Aminosulfonamide and Its Derivatives, *Arch. Surg.* 34: 351 (Feb.) 1937.

12. Foulis, M. A., and Barr, J. B.: *Brit. M. J.* 1: 445 (Feb. 27) 1937.

13. Southworth, H.: *Proc. Soc. Exper. Biol. & Med.* 36: 58 (Feb.) 1937. Long and Bliss.¹¹

14. Lancefield, R. C.: *J. Exper. Med.* 57: 571 (April) 1933.

15. Hare, R.: *J. Path. & Bact.* 41: 499 (Nov.) 1935.

16. Colebrook and Kenny.¹⁰ Long and Bliss.¹¹

17. Proom, H.: *Lancet* 1: 16 (Jan. 2) 1937.

18. Schwenker, F. F.; Gelman, Sidney, and Long, P. H.: The Treatment of Meningococcal Infection with Sulfanilamide, *J. A. M. A.* 108: 1407 (Apr. 1937).
Gross, Paul, and Mellon, R. R.: on Type III Pneumococcus Infection, *J. Med.* 36: 148 (March) 1937.
Gross, Paul: The Efficacy of p-Aminobenzenesulfonamide in Experimental Type III Pneumococcus Pneumonia of Rats, *ibid.*, p. 225.
Rosenthal, S. M.: *Pub. Health Rep.* 52: 48 (Jan. 8) 1937. Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives: Clinical Observations on Their Uses in Treatment of Infections Due to Beta Hemolytic Streptococci, *Arch. Surg.* 34: 351 (Feb.) 1937.

advantage over Sulfanilamide except in the matter of stability in solution and availability in ampules. It is promoted for parenteral administration only. The advantage of greater solubility would seem to be discounted by the fact that a 2.5 per cent solution is theoretically equivalent to a 0.73 per cent solution of Sulfanilamide. However, at 37 C. it would be possible to prepare a more concentrated solution of Prontosil Soluble and at lower temperatures the 2.5 per cent solution remains stable. Although in the therapeutic results reported it has generally been administered in less than this equivalent amount, it has not been shown by carefully controlled experiments that when given in less than equivalent amounts it is as effective as Sulfanilamide given in greater than equivalent amounts. Neither has it been shown that Prontosil Soluble, if given in amounts equivalent to the usual doses of Sulfanilamide, would not be more toxic than the latter. It has the disadvantage of coloring the tissues red.

Sulfanilamide (para-amino-benzene-sulfonamide) is apparently the active principle of the compounds just mentioned. It is colorless, relatively inexpensive and can be administered parenterally or orally. It has the apparent disadvantage of being relatively insoluble (0.8 per cent at 37 C. and 0.4 per cent at 15 C.) and, because of its tendency to crystallize out of solutions, has not been made available in prepared solution ready for injection. It is marketed in the form of tablets containing 0.3 Gm. and 0.5 Gm. of the drug mixed with an excipient and as Sulfanilamide powder. The tablets are not suitable for dissolving in solution for parenteral injection. For such purpose the Sulfanilamide powder should be used.

The Council voted to accept Sulfanilamide for inclusion in New and Nonofficial Remedies as a therapeutic agent for the treatment of infections by hemolytic streptococci of Lancefield's serologic group A. The Council will proceed with determining the acceptability of the various brands that have been submitted.

Council on Foods

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
FRANKLIN C. BING, Secretary.

ANNUAL MEETING OF THE COUNCIL ON FOODS

The annual meeting of the Council on Foods was held in the Association headquarters on March 11, 1937. Those present were:

Dr. F. C. Bing	Dr. G. F. Powers
Dr. Joseph Brennemann	Dr. J. S. McLester
Dr. Morris Fishbein	Dr. Mary Swartz Rose
Dr. P. C. Jeans	Dr. Russell M. Wilder
Dr. Howard B. Lewis	

Dr. Fishbein was reelected Chairman of the Council, and Dr. Jeans Vice Chairman.

A number of topics were discussed during the meeting which may be of interest to physicians, manufacturers and the general public.

The Book "Accepted Foods."—The Council discussed at some length the proposed book on accepted foods. A classification of the subject matter into chapters and these into sections was made and members of the Council were assigned to act as referees for each section.

Special Mixtures for Feeding Infants.—The referee of the Council presented a report on infant feeding preparations of the so-called one-formula type. The history of the development of this type of preparation was reviewed briefly. In the old days when it was difficult to feed a baby, an ideal food was wanted, one that would be as successful as human milk. A number of preparations were developed and in the hands of skilful pediatricians these met with more or less success; but it has been only within recent years, as our knowledge of nutrition increased, that more generally useful preparations were made commercially. The referee pointed out that it would be advantageous to practitioners if the composition of each accepted product was declared prominently on the label.

The number of units of vitamin D, for example, in products which contain this vitamin, should be declared together with a statement of the source of the vitamin. The Council voted that firms producing accepted mixtures for use in infant feeding be requested to declare on the labels the unitage and source of the vitamin D, if claims are made for the presence of this factor. Firms will be given, of course, ample opportunity to use up current labels.

The Nutritional Value of the Proteins in Milk.—A number of firms which produce cow's milk preparations for use in infant feeding have directed attention in their advertising to the nutritional value of the proteins of cow's milk as compared with human milk. The referee reviewed the most recent work on the nutritive value of the proteins of milk. These proteins consist principally of casein and lactalbumin, with small amounts of lactoglobulin and traces of one or two other proteins. Animal experiments indicate that the limiting factors in the nutritional value of casein and lactalbumin, the two most important proteins of milk, are the sulfur containing amino acids cystine and methionine. Casein contains less cystine but more methionine than lactalbumin. Because these two amino acids have almost equivalent nutritional value it would appear that, contrary to what has hitherto been supposed, casein is not inferior to lactalbumin. However, a more exact evaluation of the relative nutritive value of these two proteins cannot be made until more detailed information is available.

Sugars for Use in Infant Feeding.—The carbohydrate preparations that may be used in the artificial feeding of infants may conveniently be divided into three groups: pure sugars, hydrolyzed starch preparations, and mixtures. The referee reviewed the evidence regarding the nutritional value of each group in the feeding of infants. The claims that are made for the individual accepted products were discussed. It was the consensus of the Council that, in the light of available evidence, the choice of a sugar for use in infant feeding is of relatively minor importance as compared with other problems of infant feeding. Individual cases, however, might well require the selection of one sugar over another, but this, of course, is a matter for the practicing physician to decide.

What Amounts of Various Dietary Constituents Should Be Considered Significant.—The Council discussed the problem of rating individual food products as sources of the dietary essentials. The reports of assays and of chemical analyses should be interpreted in terms of human requirements. The referee brought out that a food can be regarded as a significant source of a dietary essential if it fulfils several tentative requirements:

1. In general, when one tenth of the day's requirement for an average man is furnished in a portion which can be easily eaten in one day, the food may be regarded as a "fair" source.
2. When one tenth of the day's requirement is contributed by an amount of the food which at the same time furnishes not more than 200 calories, the food may be classed as a "good" source.
3. When one tenth of the day's requirement is furnished by a food which appears in the diet practically every day, and in which the portion contributing one tenth of the essential furnishes not more than 100 calories, the food may be classed as "excellent."
4. When a food is not one which can be easily eaten in amounts to furnish one tenth of the day's requirement, or is one eaten infrequently, or both, and the amount required for one tenth of the day's allowance of the essential furnishes more than 200 calories, the food is a negligible or poor source.

It was brought out that a number of additional factors should be considered. Not all the calcium or the iron of foods may be available. Foods in general are relatively poor sources of vitamin D. In the final analysis, the rating of foods as excellent, good, fair, poor or negligible sources of the different essentials of the diet is a matter of judgment. It was the consensus of the Council that this subject should be discussed in the form of a report and that a table of allowable claims for various foods should be prepared as a guide for interested persons.

Vegetable and Fruit Juices.—The referee mentioned that while there are individual differences in the fruit juices, both fresh and canned, they can well be considered as a class. They are valuable foods and have a fairly well defined place in the diet. But their value sometimes is grossly exaggerated. The claim that fruit juices will prevent or cure colds has no basis in fact. There is no clear-cut evidence that any one brand of fruit juice is significant in the prevention of dental caries. From a nutritional standpoint, the chief value of fruit juices lies in their content of vitamin C and, to a less extent, vitamins B₁ and A. An important component is their water content; by drinking fruit juices, a sick person and, indeed, a well person, can be induced to take larger amounts of water. The carbohydrate content of fruit juices is a factor to be considered, also, especially in diabetes.

The Problem of Lead in Foods.—Lead is a toxic cumulative substance which usually gets into the body from sources other than foods. Available evidence indicates that natural food products contain minute traces of this metal. Some fruits and vegetables may become contaminated with spray residues which contain lead; special methods of washing these foods should be observed by growers. Food products may become contaminated with lead during manufacture unless simple precautionary measures are observed. There is no evidence that the products which stand accepted by the Council contain harmful amounts of lead. In the light of present day evidence the precautions suggested by the United States Department of Agriculture appear adequate, if enforced, to protect the public from ingesting harmful amounts of lead in food, and it appears that there is no cause for alarm. On the other hand, the Council believes that manufacturers should be cognizant of the problem in order that they may bend all efforts to avoid contamination of food products with lead during manufacturing processes.

The Policy of the Council Regarding the Fortification of Ordinary Foods with Vitamin D.—As a result of the recent Council decision not to accept any ordinary foods, other than milk, when fortified with vitamin D, the question was raised about the policy of the Council toward chocolate milk drinks so fortified. Chocolate milk drinks usually are prepared from milk which has had part of the cream removed. It appears that the addition of vitamin D to those products of this class, which are otherwise acceptable, might improve their nutritional value and apparently would not be contrary to the existing decisions of the Council. It was decided that further evidence of the suitability of chocolate milk drinks as a vehicle for providing the public with an additional source of vitamin D would need to be studied before the Council could arrive at a decision on this question.

There was also considerable discussion on the policy of the Council not to recognize ordinary cereal products fortified with vitamin D. One notion which has appeared in some of the scientific literature is that cereals contain a decalcifying substance the effects of which should be overcome by the addition of vitamin D. It was the opinion of the Council that there is no evidence that a toxic factor of this type exists and, therefore, there is no need of adding vitamin D to cereal products in order to overcome its alleged harmful effects. In general, cereal products are good, wholesome foods. Whether or not they possess special merit as a vehicle for carrying vitamin D is another question. From the information that is available to the Council, it seems that the possibility of adding vitamin D to cereal products is so restricted that only a few products containing significant amounts of vitamin D would be available to the public. The addition of vitamin D to cereal products undoubtedly would improve their nutritive values to the extent to which the vitamin D is added. However, it is not desirable to manipulate every food product so that it contains all the essentials needed for an adequate diet. The Council voted that, for the present, its policy not to recognize the fortification of ordinary foods other than milk with vitamin D should be continued.

Educational Advertising.—The referee brought up the question of the policy of the Council with regard to educational advertising. Leaflets, booklets and brochures are being prepared by many firms and widely distributed, especially in the schools. The Council has devoted considerable attention to

the nutritional claims made in general advertising material of this type. Many of the commercial pamphlets are well printed, handsomely illustrated and attractive. If carefully scrutinized, they are often of considerable value. The Council is more or less obligated, in the interests of the public and the medical profession, to review such material and to pass on it. The Council voted that the consideration of this type of advertising should be continued as in the past.

Scope.—The Council discussed two questions regarding its scope. It recently was voted no longer to accept, among other foods, ice cream and candy. After giving consideration to the factors involved, the Council voted again that candy products should not be considered for acceptance unless health claims are made for them. Some time ago the Council decided that ice cream and related products should not be continued on the list of accepted foods after June 1, 1937. This action was taken only because the facilities of the Council would not permit the consideration of individual products and is without prejudice to the products themselves. A number of manufacturers are considering the possibility of forming their own organization for the inspection and control of ice cream products. The Council believes that all manufacturers should be encouraged to raise the standards of their product. Whether or not the Council could recognize ice cream manufactured with special methods was not decided; judgment was withheld until future developments might afford greater opportunity for action in the interest of the public.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

FOUR BBBB "FRESHLIKE" BRAND STRAINED
UNSEASONED PRODUCTS (PEAS, BEETS,
CARROTS, SPINACH, GREEN BEANS,
TOMATOES, CELERY, APPLES,
PRUNES, APRICOTS, AND
VEGETABLES WITH
CEREAL AND BEEF
BROTH)

Distributor.—John Blaul's Sons Company, Cedar Rapids, Iowa.

Packer.—The Larsen Company, Green Bay, Wis.

Description.—Respectively strained peas, spinach, carrots, beets, green beans, celery, tomatoes, prunes, apples, apricots and vegetables with cereal and beef broth; prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, Aug. 26, 1933, p. 675; Aug. 12, 1933, p. 525; Aug. 19, 1933, p. 605; July 8, 1933, p. 125; July 29, 1933, p. 366; Sept. 2, 1933, p. 779; July 1, 1933, p. 35; July 22, 1933, p. 282; Aug. 10, 1935, p. 437; July 4, 1936, p. 38; July 22, 1933, p. 283).

SEXTON BRAND YELLOW CLING PEACHES,
JUICE PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned peaches, packed in juice.

Manufacturer.—Yellow cling peaches fully tree ripened are halved, pits removed, mechanically peeled with caustic soda solution, spray washed under pressure, blanched, chilled and filled into cans. The cans are automatically filled with fruit juice, exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 89.0%, total solids 11.0%, ash 0.5%, fat (ether extract) trace, protein (N \times 6.25) 0.5%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 9.8%.

Calories.—0.41 per gram; 12 per ounce.

Claims of Manufacturer.—For diets in which sweetened fruit is proscribed.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 29, 1937

METABOLISM IN PREGNANCY

The ability of the body to deposit material in the tissues in times of plenty and to mobilize it when need arises can readily be demonstrated. Thus the areolar connective tissue is a reservoir for excess energy in the form of fat, the muscle and liver contain protein that is available in an emergency, and now even the skeleton is looked on as a labile structure as far as the give and take of mineral salts is concerned. It is not surprising, then, that metabolic balance studies tend to show differences in the retention of biochemically important substances depending on the relative adequacy of the intake of these substances before the period of observation. In general, a more or less prolonged suboptimal consumption of a dietary essential is likely to be followed by an increased retention when the supply is abundant. This phenomenon has been shown for nitrogen, vitamin A, calcium and cevitamic acid. There is now evidence indicating that previous environment (chiefly nutritional) may influence the accentuated exchange of metabolites during the reproductive cycle.

Pregnancy, from the point of view of physiologic economy, is a period of material gain to the maternal organism. Lactation is known to represent losses of considerable magnitude, due primarily to the removal of the milk. When, however, continuous balance studies are carried out through a large part of the periods of pregnancy and lactation, it becomes obvious that, under favorable nutritive conditions, large enough quantities of materials are probably stored during pregnancy to cover the losses incident to parturition and lactation. In a study of this kind on a human subject reported from the Children's Fund of Michigan,¹ emphasis was laid on the superior diet consumed during the period of observation. In a more recent study, Hummel and her co-workers² have recorded the daily

retention of nitrogen and several of the inorganic elements over the last sixty-five days of pregnancy in a primipara whose medical history over the previous six years showed an unsatisfactory nutritional background. The data were compared with those obtained under similar circumstances on a healthy woman (a quadripara). Of particular interest is the difference in retention of calcium and nitrogen; with the liberal allowance of 32.2 mg. of calcium per kilogram of body weight, the primipara showed a mean daily retention of 13.2 mg., whereas the healthy control subject retained only 4.8 mg. daily on an intake of 40.8 mg. per kilogram of body weight. The mean total daily intake of nitrogen for the primipara and for the control was 14.05 and 19.03 Gm. respectively, whereas the storage was 1.32 and 3.02 Gm. Correlated with the smaller retention of nitrogen by the primipara was a considerably smaller production of milk. Furthermore, it was shown that only during the latter half of the period of observation were the needs of the fetus for nitrogen met by that retained from the food in this subject.

Circumstances other than gravidity appear to exert an influence on the retention of materials derived from the food during pregnancy. It is of considerable interest that the tendency to reestablish depleted stores was not changed by the gravid state as far as calcium is concerned in this study. The foregoing evidence indicates that, despite the ordinarily effective biochemical devices whereby the organism insures against maternal loss as a result of the reproductive cycle, the maintenance of a favorable physiologic and nutritional background at other times is an important safeguard for the metabolism of pregnancy.

PHYSICAL "FITNESS" AND IMMUNITY TO PNEUMOCOCCI

The effects of the metabolic rate on the immune reactions of the body are significant from the points of view of both etiology and treatment. As a first step in such an investigation Locke¹ determined the metabolic efficiency of rabbits. Stock animals were chilled by partial immersion in cold water until the rectal temperature had been reduced to approximately 95 F. The rabbits were then dried with absorbent cloths and the speed of return to normal temperature was noted. In the most efficient rabbits a 3 degree rise in rectal temperature occurred within twenty minutes. Rabbits requiring forty minutes for a similar rise were rated lower, while those requiring as long as 125 minutes were placed in still another group. Ratings were fairly constant for each animal.

Several rabbits of each group were selected for immunologic tests. Each rabbit was injected intravenously with from six to eighty-three virulent type I pneumococci per cubic centimeter of calculated blood volume. Blood cultures (pour plates) were made at

1. Hunscher, Helen A.; Hummel, Frances C.; Erickson, Betty N., and Macy, Icie G.: *J. Nutrition* 10: 579 (Dec.) 1935. Hummel, Frances C.; Sternberger, Helen R.; Hunscher, Helen A., and Macy, Icie G., *ibid.* 11: 235 (March) 1936.
2. Hummel, Frances C.; Hunscher, Helen A.; Bates, Mary F.; Bonner, Priscilla; Macy, Icie G., and Johnston, J. A.: *J. Nutrition* 13: 263 (March) 1937.

1. Locke, Arthur: *J. Infect. Dis.* 60: 106 (Jan.-Feb.) 1937

the end of thirty minutes, one hour and three hours to determine the rate of disappearance of the pneumococci from the circulation. The blood of all rabbits of the first group was free from organisms within thirty to sixty minutes, even after intravenous doses as high as eighty-three micro-organisms per cubic centimeter. Ninety-two per cent of the rabbits of this class showed no fever or other demonstrable symptoms and all recovered from the infection. The rabbits of the last group, however—those without efficient heat regulation—were unable to remove pneumococci from the circulation even when the intravenous dose was reduced to six micro-organisms per cubic centimeter. All these rabbits died within three days of pneumococcal septicemia. The rabbits of the intermediate group varied in becoming bacteria free and in recovery.

In a second series, Locke observed the penetration into the blood stream of pneumococci derived from artificially produced intradermal foci. The results were obtained from plates poured at the end of twenty-six hours. Sixty-nine per cent of the most efficient rabbits showed negative blood cultures at this time. Most of them recovered from the infection. The third group of rabbits showed a count of 2,000 or more pneumococci per cubic centimeter of blood at the end of twenty-six hours. All these animals died from the resulting generalized infection. As before, rabbits of the second group occupied an intermediate position.

Improvements in the rating of all groups were observed following transfer of the rabbits to quarters 20 degrees F. cooler. Morphine administered in doses sufficient to inhibit shivering decreased the fitness ratings, smaller doses being without immunologic effects. Significant decreases were observed also following withdrawal of food. Occasional improvement was noted following subcutaneous injection of "antuitrin." Improvements also followed intravenous injection with adrenal cortex extract. Daily feeding with liver extract prepared for the treatment of pernicious anemia (or an intravenous injection with smaller doses of this extract) led in all cases to improvement. Control intravenous injections with peptone, heparin or normal horse serum were negative.

In order to determine the possible clinical applications of his "physiologic gradient," Locke measured the oxygen consumption and body surfaces of sixty-eight persons during maximum effort. Oxygen consumption varied from 410 to 1,500 cc. per minute for each square meter of body surface. Relative fitness was calculated by arbitrarily assigning a fitness rating of 1 (100 per cent) to the highest figure (1,500 cc.). Thus, a person consuming 410 cc. of oxygen per minute would have a calculated rating of $\frac{410}{1,500}$, or 0.27. The sixty-eight persons thus classified on the basis of respiratory efficiency were asked to report the number of colds they had had during the observation period of seven months. Eighteen persons with fitness ratings above 0.6 reported one cold or less during this period. Nine persons with

fitness ratings below 0.5 reported four colds or more during the same period. These observations are suggestive, but their exact clinical significance obviously awaits further investigation.

THE EXCHANGE OF SALT AND WATER BETWEEN MUSCLE AND BLOOD

"The composition of tissue cells cannot, like that of blood cells, be determined by direct analysis, because these cells cannot be separated from the interstitial substance which surrounds and connects them. The existence of the latter cannot be questioned; its volume and character defy direct measurement." So writes Peters¹ in a comprehensive survey of the exchange of fluids in the body of man. The question as to whether clinical edema represents an increase in the volume of cells or of interstitial tissue fluids or of both has been the subject of some controversy in the past. While the interchanges of fluid and electrolytes that take place between the red blood cells and the plasma are now well described, the limitations mentioned by Peters have prevented any such precise description of similar exchange between the blood and the tissue cells.

By an ingenious combination of analysis and calculation, Eichelberger and Hastings² have thrown much light on the fundamental processes involved in the exchange of salt and water between muscle and blood. Their experiments were of necessity conducted in living animals, since they found that excised muscle quickly undergoes changes in permeability which destroy the physiologic meaning of observations on such tissues *in vitro*. They found that normal muscle, calculated on a fat-free basis, consists of about 17 per cent of interstitial fluid, by weight, and about 83 per cent of cells. The water content of the whole muscle averages 76.5 per cent and of the cells 71.7 per cent, the variations from the average being hardly greater than in the case of serum. That muscle cells contain little or no sodium or chloride had previously been suspected; their observations leave little doubt that this is the case and that the cells must be considered impermeable to these ions as well as to those of potassium.

Of special interest is their demonstration that simple fluid excess, uncomplicated by acidosis or alkalosis, results in an increase in the intercellular fluids without either swelling or shrinkage of the cells. Some swelling of the cells occurs when alkalosis is induced by overbreathing, while acidosis induced by rebreathing of expired air results in shrinkage of the cells. It is noteworthy, however, that except under extremely abnormal conditions the changes in volume observed, either of

1. Peters, J. P.: *Body Water, the Exchange of Fluids in Man*, Springfield, Ill., Charles C. Thomas, 1935, p. 128.

2. Hastings, A. B., and Eichelberger, Lillian: The Exchange of Salt and Water Between Muscle and Blood: I. The Effect of an Increase in Total Body Water Produced by the Intravenous Injection of Isotonic Salt Solutions, *J. Biol. Chem.* **117**: 73 (Jan.) 1937. Eichelberger, Lillian, and Hastings, A. B.: II. The Effect of Respiratory Alkalosis and Acidosis Induced by Overbreathing and Rebreathing, *ibid.* **118**: 197 (March) 1937; III. The Effect of Dehydration, *ibid.* **118**: 205 (March) 1937.

the cells or of the interstitial fluids, were relatively small. These results would appear to cast doubt on the view that either acidosis or alkalosis is actively concerned with the occurrence of clinical edema.

PROGRESSIVE POSTOPERATIVE GANGRENE OF THE SKIN

Thomas S. Cullen¹ in 1924 described a case in which, following an operation for a deep seated abdominal abscess, there developed an excessive ulceration and necrosis of the abdominal wall. This was apparently the first case of the kind to be described. Since then, however, cases have been reported by Brewer and Meleney, Hellström, Kappis, Baker and Tarry, Horsley, Christopher and others. The condition presents a fairly typical clinical picture. The great majority of the cases developed following the drainage of a deep abscess, either in the peritoneal cavity or in the thoracic cavity. Liedberg² states in a recent review that appendicitis was the most frequent primary disease among the forty-one cases he had collected. In nineteen of the cases of appendicitis, drainage was instituted. Of the four cases involving the thoracic wall, three developed after an operation and drainage for empyema and one after incision and drainage of a breast abscess. The eight fatalities in this series were directly due to the progressive nature of the complication and not to the primary disease.

The symptoms begin to appear, as a rule, at the end of the first or second week after the operation. At first they suggest an infection either of the whole wound or of the areas about the skin sutures. The wound edges after a few days become purple, while the outer zone takes on a bright red discoloration, which gradually fades out into the normal skin. The process involves only the skin and the subcutaneous tissues and does not extend into the fascia or the musculature. The involved area is painful and exquisitely tender. The spread of the gangrenous process is slow but unremitting and may involve the entire surface of the abdominal wall and the chest wall or may spread to the thigh. The febrile reaction and the constitutional symptoms are mild but the unremitting character of the disease and the excruciating pain caused by the slightest manipulation of the wound bring about a psychic depression and a lowering of vital functions which may terminate in death.

Meleney,³ employing accurate bacteriologic methods, isolated from the periphery of an excised lesion a pure culture of a micro-aerophilic nonhemolytic streptococ-

cus. In the gangrenous tissue itself the organism was found to be associated with the hemolytic *Streptococcus aureus*. Meleney further found that if either of the organisms was injected into animals in a pure culture a lesion was not produced but that when the two were mixed and injected a gangrenous lesion similar to that seen in clinical cases resulted. Meleney advances the hypothesis that the disease is the result of a synergistic action of the two organisms, the nonhemolytic micro-aerophilic streptococcus being the essential organism in the zone of advance, in some way preparing the ground for the gangrenous action of the combined organisms. The streptococcus described by Meleney corresponds to the *Streptococcus evolutus* of Prévot.

Conservative therapeutic measures, such as the employment of the various disinfecting substances, the use of vaccines or arsphenamine, radiation therapy, blood transfusions or the excision of the gangrenous margins of the wound, have failed to check the progress of the disease. Radical excision of the entire involved area, however, including the outer red zone, proved to be effective. The patient is at once relieved of the intractable pain, the general condition rapidly improves and the denuded area responds favorably to skin transplants.

Current Comment

VITAMIN D MILK

The Council on Foods of the American Medical Association¹ has decided that for the present milk is the only common food that will be considered for acceptance when fortified with vitamin D. Hence the recent discussion by Krauss and Bethke² on new developments in the field of vitamin D milk is especially worthy of comment. Numerous methods, as they point out, are available for increasing the vitamin D content of milk. In attempting to evaluate the best method for the particular circumstances, factors aside from cost must be taken into consideration. Control, that is, the assurance that milk contains the specified amount of vitamin D, is of great importance. At present this control is vested in various groups of governmental agencies and differs widely, therefore, in adequacy. The importance of standardization of the procedures for fortifying the milk and the determination of the best agency for control is readily evident from the figures cited by these authors concerning present vitamin D consumption. They quote from the October 1936 issue of *Vitamin D Milk* as follows: "It is reliably estimated that, in the United States, vitamin D fluid milk is now being consumed at the rate of about 400,000,000 quarts annually. While this is only about 3 per cent of the total volume of household fluid milk, it really represents a very considerable amount of organization, made within a relatively short time. In

1. Cullen, T. S.: A Progressively Enlarging Ulcer of the Abdominal Wall Invading the Skin and Fat, Following Drainage of an Abdominal Abscess Apparently of Appendiceal Origin, *Surg., Gynec. & Obst.* 38: 579 (May) 1924.

2. Liedberg, Nils: Zur Frage der postoperativen, fortschreitenden Hautgangrän nach Eingriffen an Bauch und Thorax, *Acta chir. Scandinav.* 77: 354 (Oct.) 1936.

3. Meleney, F. L.: Differential Diagnosis Between Certain Types of Infectious Gangrene of the Skin, with Particular Reference to Hemolytic *Streptococcus Gangrene* and Bacterial Synergistic Gangrene, *Surg., Gynec. & Obst.* 56: 847 (May) 1933.

1. The Present Status of Vitamin D Milk, *J. A. M. A.* 108: 256 (Jan. 16) 1937.

2. Krauss, W. E., and Bethke, R. M.: New Developments in the Field of Vitamin D Milk, *Bull. Ohio Agricultural Experiment Station* 22: 154 (Jan.-Feb.) 1937.

addition, it is estimated that the yearly consumption of evaporated vitamin D milk is equivalent to 800,000,000 quarts of fluid milk. The consumption of both kinds is equivalent to over a billion quarts of fluid milk annually." While these are figures cited for the whole United States, there are others available which indicate tremendous variation in consumption among different communities. If vitamin D in milk is as important as some believe, this variation is unsatisfactory either because some communities are getting too little or others are getting more than they need. In Chicago, according to a report quoted in this paper, vitamin D fluid milk constituted about 6 per cent of all fluid milk sold during the period from June 1934 to June 1935. For Elizabeth, N. J., from 2 to 3 per cent of all fluid milk entering that city during the early part of 1936 was vitamin D milk. According to data received in July 1936, Portland, Maine, tops all other cities in the use of vitamin D milk, with about 19 per cent of all the fluid milk consumed there being fortified with vitamin D. It is thus obvious that much work remains to be done in determining the needs of communities for vitamin D milk, the preferred methods of adding the vitamin D to the milk, and its careful control to assure satisfactory vitamin D content.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in the Faculty.—Dr. Philip B. Armstrong, assistant professor of anatomy at Cornell University Medical College, New York, has been appointed professor of anatomy at the University of Alabama School of Medicine to succeed Dr. Franklin S. DuBois, who has accepted a fellowship at the Mayo Foundation. Dr. Armstrong graduated from Cornell in 1926. Other changes are: Dr. Oscar O. Christianson, associate in pathology, Cook County Hospital, and instructor in pathology at Rush Medical College, Chicago, will succeed Dr. Cornelius S. Hagerty as assistant professor of bacteriology and pathology when he leaves at the end of the session to engage in private practice in Chicago. Dr. Ben Neely Miller has been appointed to succeed Dr. Wallace S. Marshall as instructor in physiologic chemistry. Dr. Marshall will enter the practice of medicine in Wisconsin with his father. Dr. John H. Ferguson, associate professor of physiology and pharmacology since 1935, will also leave at the end of the session to become assistant professor of pharmacology at the University of Michigan School of Medicine; his successor has not been announced. Dr. Herbert K. Fidler has been named assistant professor in bacteriology and pathology.

ARKANSAS

Personal.—Dr. Wylie R. Felts has been elected mayor of Judsonia. Dr. John B. Elders has been appointed medical director of health district number 12, with headquarters at Paragould. Dr. Allie C. Kolb has resigned as superintendent of the state hospital at Little Rock.

District Meetings.—Dr. Frederick H. Krock, Fort Smith, discussed "Treatment of Acute Infections of the Urinary Tract" before the Second Councilor District Medical Society, April 5, in Searcy, and Dr. Ralph E. Weddington, Fort Smith, "Nephritis in Childhood: Its Clinical Course and Management." The Third District Medical Society was addressed, April 6, in Clarendon, by Drs. Milton C. John Jr., Stuttgart, management of the menopause; Alan G. Cazort, Little Rock, "Allergy in General Practice"; Gilbert J. Levy, Memphis, Tenn., "Infantile Paralysis," and Lee Vallette Parmley, Little

Rock, "Brain Trauma."—The First Councilor District Medical Society met in Blytheville, May 4, with the following speakers, among others: Drs. Robert Lyle Motley, Memphis, Tenn., "Treatment of Edema, Cardiac and Renal"; Ellis Fischel, St. Louis, "Treatment of Cancer," and Chester D. Allen, Memphis, Tenn., "Urinary Infections."

COLORADO

Society News.—Dr. Vernon G. Jeurink, Denver, addressed the Northeast Colorado Medical Society, April 6, on common problems of proctology.—Dr. Albert Bessemans, rector, Ghent University of Belgium, addressed the faculty of the University of Colorado School of Medicine, Denver, and the Medical Society of the City and County of Denver, May 5, on "Experimental Data on Antisyphilitic Hyperpyrexia Produced by Physical Agents."

CONNECTICUT

Society News.—Clarence C. Little, D.Sc., Bar Harbor, Maine, addressed the Yale Medical Society, New Haven, recently, on "A Comparison Between Genetics of Morphological Characters and Cancer of Mice." The society was addressed, April 14, by Drs. Milton C. Winternitz, Robert M. Thomas and Philip M. LeCompte, among others, on "Pathology of Arteriosclerosis." Dr. Albert Bessemans, rector of the University of Ghent, Belgium, addressed the society April 9 on "Antisyphilitic Hyperpyrexia Produced by Physical Means."—Dr. Edward J. Humphreys, director of research, Letchworth Village, Thiells, N. Y., addressed the New England Society of Psychiatry in Norwich, April 27, on "Present Day Research Trends in the Field of Human Deficiency."

Dr. Cushing Will Retire from Yale Faculty.—Dr. Harvey Cushing, since 1933 Sterling professor of neurology, Yale University School of Medicine, New Haven, will retire from the faculty in June, according to the New York Times. Dr. Cushing graduated from Harvard University Medical School in 1895. He was associated with Johns Hopkins University School of Medicine from 1902 to 1912 and from 1912 to 1932 was professor of surgery at Harvard and surgeon-in-chief to the Peter Bent Brigham Hospital. He engaged in the practice of surgery from 1895 to 1933, when he went to Yale. He has been president of the American College of Surgeons, American Neurological Association and the American Surgical Association. He was awarded the Charles Mickle fellowship of the University of Toronto in 1922, the Cameron Prize of the University of Edinburgh in 1924 and the Lister Medal in 1930. In 1925 he was awarded the Pulitzer Prize for his book "The Life of Sir William Osler."

ILLINOIS

Society News.—At a meeting of the Mercer County Medical Society, Aledo, April 13, Drs. Frederick H. Lamb, Davenport, Iowa, presented a paper on "Comparison of Defects in Various Types of Anemia" and Harold M. Camp, Monmouth, "The Eradication of Syphilis."—Dr. Walter C. Alvarez, Rochester, Minn., addressed the Vermilion County Medical Society in Danville, April 6, on "Diagnosis and Management of Some of the Commoner Gastro-Intestinal Tract Disorders."—Dr. Fred H. Albee, New York, discussed "Surgical Restoration of Lever at the Top of the Femur" before the McLean County Medical Society, April 15, in Bloomington.—Dr. Abraham A. Low, Chicago, discussed "Insulin Shock Therapy in the Treatment of Dementia Praecox" before the Kankakee County Medical Society, Kankakee, April 9; Dr. Robert R. Smith, then managing officer of the Kankakee State Hospital, was host to the society at a dinner preceding the lecture. The society was addressed at a special meeting, April 2, by Dr. Edwin S. Hamilton, Kankakee, on "The Future of the Practice of Medicine."

Chicago

University News.—Two new courses have been added to the curriculum of Loyola University School of Medicine. They are intended as a preparation for the study of psychiatry, psychobiology for the freshmen and psychopathology for sophomores.

Campaign Against Illegal Practitioners.—In the current drive against illegal practitioners by the state department of registration, Ali Mohamed, 714 East Forty-Third Street, was sentenced, April 19, to sixty days in the county jail for violation of the state medical practice act. Similar charges were placed against the following: F. L. Tener, chiropractor, 817 North Ashland Avenue, pleaded guilty, April 30, and fined \$100 and costs; Joseph J. Daily, also known as "Burt," 1007 South

State Street, room 55, pleaded guilty, April 29, and was sentenced to sixty days in the county jail; J. M. Gilmore, 5659 West North Avenue, pleaded guilty, April 28, and fined \$100 and costs; Carl R. Canfield, pharmacist, 7101 South Halstead Street, pleaded guilty, April 26, fined \$200 and placed on one year's probation. Others arrested in the roundup include:

William J. Carrington, 112 West Randolph Street.
Erling E. Saland, 3 West Madison Street, Oak Park, Ill.
Elmer Leroy Spencer, 13008 South Western Avenue, Blue Island.
James A. Craig, Box 142, Cook County, Robbins, Ill.
J. E. Bradley, Aero Laboratories, 1549 North Western Avenue.
Ali Yehi DeBeh, 2510 North Lincoln or 910 Sunnyside Avenue.
Dr. J. Nowak, 1200 North Ashland Avenue.
Erich Frankowsky, D.O., 4010 West Madison Street.
Otto C. Mollnauer, 3440 West Fullerton Avenue.
O. C. Moe, chiropractor, 3442 Fullerton Avenue.
F. W. Ackerman, 4026 North Kimball Avenue and 4009 Bernard Street.
R. A. Bercier, Tremont, Ind., and 2848 North Kedzie Avenue.
P. M. Hardesty, D.C., 3450 Irving Park Boulevard.
M. Koltunski, 1032 North Ashland Avenue.
Frank Paderevski, 202 South State Street.
Louis Marinakos, 1209 South Cicero Avenue, Cicero, Ill.
James Johnson, 3735 South State Street.

INDIANA

Society News.—The Tippecanoe County Medical Society, Lafayette, heard Dr. Archibald L. Hoyne, Chicago, discuss "Diagnosis and Treatment of Communicable Diseases," April 13.—Dr. George A. McDowell, Fort Wayne, addressed the Whitley County Medical Society in Columbia City, April 13, on "Obstetrics in the Home."—The St. Joseph County Medical Society was addressed at South Bend, May 19, by Dr. Samuel M. Feinberg, Chicago, on "Air-Borne Nonpathogenic Fungi: A Newly Recognized Menace to Allergic Individuals."—Dr. Louis J. Karnosh, Cleveland, discussed neurologic conditions in surgery before the Muncie Academy of Medicine, April 13, in Muncie.—At a meeting of the Rush County Medical Society, April 13, Dr. John R. Brayton, Indianapolis, discussed "The Diagnosis and Treatment of Early Syphilis."

Rehabilitation Program in Flood Area.—The four district health centers, temporarily established during the flood at Huntingburg, New Albany, Dillsboro and Evansville, will be maintained with health officers, sanitary engineers, public health nurses, supervisors and office personnel until the rehabilitation program is completed, according to a report of the state department of health in April. Most of the general health work was progressing satisfactorily and the largest part of the emergency sanitation work, such as pumping and slushing of wells, cisterns, water mains and similar activities, had been completed at the time of the report. Instruction sheets, pointing out principal public health hazards and offering suggestions, were printed under the supervision of the state board and tacked to houses. During the first four or five days, when the situation was most tense, it was necessary for the board to purchase and handle all medical supplies, although this is not regularly its function. About \$10,000 worth of medical supplies, exclusive of serums and vaccines, were rushed into the area. Hospitals in both the flood and refugee areas donated their facilities and staffs for service to the flood victims. Members of all county medical societies in the state responded with liberal donations, while those in the immediate flood areas cooperated by examining and inoculating refugees and victims without charge. At the request of the governor, a three day inspection tour of the stricken area was made. In Johnson County, 134 refugees were placed under quarantine because of one case of scarlet fever. In Evansville, the new American Legion headquarters was transformed into a sixty bed emergency hospital with a separate contagious disease ward to supplement the services of the regularly established hospitals. Newburgh cared for 197 patients during the first five days of the flood in the emergency hospital in the Masonic Lodge Hall and Red Cross Center, while the emergency hospital at Aurora, during the same period, treated 670 outpatients and thirty inpatients, according to the report, which is a general discussion and not a complete statistical analysis of the situation.

IOWA

Society News.—At a meeting of the Des Moines Academy of Medicine and the Polk County Medical Society, April 27, Drs. Dwight C. Wirtz and Dennis H. Kelly discussed "Elbow Fractures" and "Behavior and Habit Problems in Childhood" respectively. Drs. James L. Dubrow and Walter R. Wynne of the Veterans Administration Facilities addressed the society at a special scientific session, May 4, on "Primary Carcinoma of the Lungs."—Dr. Albert C. Moerke, Burlington, was elected president of the Iowa Society of Clinical Surgeons at its annual meeting in Iowa City, April 17.

Public Meeting on Venereal Diseases.—The Pottawattamie County Medical Society devoted its meeting in Council Bluffs, April 12, to a public meeting and open forum on the control of venereal disease. Dr. Ruben Nomland, professor of dermatology and syphilology, State University of Iowa College of Medicine, Iowa City, spoke on "The Nature and Dangers of Syphilis"; Dr. Marvin F. Haygood, deputy state health commissioner, Des Moines, "Present Status of Venereal Disease Control in Iowa," and Dr. William F. Snow, general director, American Social Hygiene Association, New York, "A Proposed Program for Venereal Disease Control."

LOUISIANA

State Medical Election.—Dr. Joseph A. O'Hara, New Orleans, was chosen president-elect of the Louisiana State Medical Society at its recent annual meeting in Monroe, and Dr. Charles M. Horton, Franklin, was installed as president. Vice presidents are Drs. Walter O. Moss, Lake Charles; Lionel J. Bienvenu, Opelousas, and Allen W. Martin, Bogalusa. Dr. Paul T. Talbot, New Orleans, was reelected secretary-treasurer. Dr. Hiram W. Kostmayer, New Orleans, the retiring president, was presented with a gold medal.

MAINE

Society News.—A recent meeting of the Cumberland County Medical Association was addressed by Dr. Walter Bauer, Boston, on gout.—Dr. George O. Cummings, Portland, discussed bronchocopy before the Portland Medical Society, April 6.—At a meeting of the Franklin County Medical Society, April 5, Dr. George L. Pratt, Farmington, read a paper entitled "The Medical Examiner System of Maine."—The Hancock County Medical Society was addressed in Ellsworth, April 21, in joint session with the dentists of the county; the speakers included S. Fred Briggs, D.D.S., Bangor, "Emotions and Their Relation to the Production of Dental Caries"; Dr. George F. Shurtleff, Swans Island, problems of the medical and dental professions, and Dr. Marcus A. Torrey, Ellsworth, "Sequelae Syndromes of the Eye, Ear, Nose and Throat from Primary Dental Origin."—A symposium on headaches was presented before the Kennebec County Medical Society, April 15, by Drs. Howard F. Hill, Waterville; Edwin R. Irgens, Waterville, and Clarence R. McLaughlin, Gardiner.—The Waldo County Medical Society was addressed in Belfast, May 19, by Dr. George F. Miller, Belfast, on "Angina Pectoris and Its Treatment."

MASSACHUSETTS

Dr. Madsen Gives the Cutter Lecture.—The Cutter Lecture on Preventive Medicine was presented by Dr. Thorvald Madsen, head of the State Serum Institute at Copenhagen and chairman of the Health Committee of the League of Nations, May 14, at Harvard University Medical School. His subject was "The Control of Syphilis in the Scandinavian Countries."

Personal.—Dr. Dwight O'Hara, professor of preventive medicine, Tufts College Medical School, has been appointed vice-dean, a newly created position, to supervise clinical instruction during the third and fourth years. He will continue with his duties as professor.—A banquet was held in honor of Dr. John J. Deacy, Lawrence, in celebration of his appointment as medical examiner of the Fifth Essex District. He was presented with a wrist watch. Those in attendance at the dinner included former Governor James M. Curley and Walter A. Griffin, mayor of Lawrence; Thomas F. Greene, D.D.S., was chairman of arrangements, and Attorney John P. Kane, toastmaster.

Health Director Appointed for Simmons College.—Dr. Helen L. Roberts, medical consultant at Simmons College, Boston, has been appointed to the faculty with the title of director of health and assistant professor of hygiene in accordance with an extended program of health service for students, effective in September. According to the New York Times under the new plan the director will have supervision of the two college infirmaries, treat cases of minor illness and recommend hospital care for the more serious cases, and will be responsible for the periodic examination of food handlers. A special fee will cover also five days of care each year in the infirmary if recommended by the physician. The college will not provide medicines, but it will assume the cost of laboratory tests and such vaccinations and inoculations as may be required. Any necessary x-ray work will be done at the college without additional expenses to the student other than for materials. Dr. Roberts, who will devote her full time to the needs of the

college community, graduated from the University of Michigan School of Medicine, Ann Arbor, in 1933.

Lectures on Obstetrics and Pediatrics.—Five lectures each on obstetrics and pediatrics were begun during April in Springfield, Fitchburg, Hyannis, Greenfield and Taunton, under the auspices of the Massachusetts Medical Society and the state department of health. The lectures are financed by social security funds and the speakers are:

- Drs. Delos J. Bristol Jr. and Robert L. DeNormandie, The Obstetric Examination.
- Drs. Marion F. Eades and Roy J. Heffernan, Delivery and the Puerperium.
- Drs. James C. Janney and Foster S. Kellogg, Bleeding in the Third Trimester.
- Drs. Herbert B. Nelson and Joseph W. O'Connor, The Toxemias.
- Drs. Louis E. Phaneuf, John Rock, Judson A. Smith and Raymond S. Titus, Sepsis.
- Drs. Warren R. Sisson and Richard S. Eustis, Nutrition Problems of Infants—Prevention and Treatment.
- Drs. Lewis W. Hill and Edward S. O'Keefe, Treatment of Common Skin Disorders in Infants and Children.
- Drs. Edwin H. Place and Conrad Wesselhoeft, Contagious Diseases with Special Reference to Prevention and Treatment.
- Drs. Richard M. Smith, Thomas H. Lanman, Joseph Garland and William E. Ladd, Abdominal Conditions in Childhood.
- Drs. Stewart H. Clifford and Robert N. Ganz, The Care of the New-Born and Premature Infant.

MICHIGAN

State Society Night.—The Lenawee County Medical Society and the Kalamazoo Academy of Medicine have designated June 15 and May 27, respectively, "state society night." These are the nights when officials of the Michigan State Medical Society are the guests of the societies.

Personal.—Dr. Robert L. Dixon, for seven years medical superintendent of the Michigan Home and Training School, Lapeer, has been appointed to a similar position at the Michigan Farm Colony at Wahjamega, a position he occupied in 1914, when the institution was established. At that time he resigned as state health officer of Michigan to accept the post, which he held until 1930, when he went to Lapeer. Dr. Dixon fills the vacancy left by the death of Dr. James T. Redwine. —Dr. Floyd J. Barkman, county physician of Menominee, has been appointed superintendent of the new Berrien County General Hospital, Berrien Springs. —Dr. S. Rudolph Light has been elected president of the Kalamazoo Chamber of Commerce.

Changes on the Faculty at Michigan.—Dr. Albert C. Furstenberg, dean and professor of otolaryngology, University of Michigan Medical School, Ann Arbor, has recently announced that Dr. Theron S. Hill, member of the staff of the State Psychopathic Hospital, has resigned, effective July 1, to accept an appointment to the department of neurology and psychiatry at Peiping Union Medical College, Peiping, China. The following promotions on the faculty of the medical school were also reported:

- Dr. Russell Nelson De Jong, to assistant professor of neurology.
- Dr. Ruth C. Wanstrom, to associate professor in the department of pathology.
- Dr. Walter Gierston Maddock, to associate professor of surgery.
- Dr. Norman R. Kretschmar, to associate professor of obstetrics and gynecology.
- Dr. Richard H. Freyberg, to assistant professor of medicine, department of internal medicine.
- Dr. John McFarland Sheldon, to assistant professor in the department of internal medicine.

MINNESOTA

Refresher Courses.—A series of lectures on obstetrics and pediatrics were to begin this month in Fulda, Brainerd, St. Cloud, Fergus Falls, Grand Rapids and Mankato, under the auspices of the state board of health cooperating with the state medical association and the extension division of the University of Minnesota. Members of the staff of the university will present the lectures, which will be financed by the social security funds.

Medal for Exhibit on Gallbladder.—Edward A. Boyden, Ph.D., professor of anatomy, University of Minnesota School of Medicine, Minneapolis, was awarded the gold medal for the best individual scientific exhibit at the annual meeting of the Minnesota State Medical Association in St. Paul, May 2-5. His subject was the gallbladder. The medal is awarded annually by the Southern Minnesota Medical Association. Honorable mention went to Dr. Lloyd F. Hawkinson, Brainerd, for his study on the endocrine glands, and to Dr. Horace Newhart, Minneapolis, for his exhibition on the prevention of deafness.

Hennepin County Meetings.—Karl W. Stenstrom, Ph.D., professor of biophysics, University of Minnesota, discussed the "Use and Misuse of X-Ray Therapy" before the Hennepin County Medical Society, Minneapolis, April 28. The society

was addressed by Dr. Edward L. Tuohy, Duluth, April 14, on "The Autopsy Protocol as a Key to Utilization of Current Medical Opinion and Research," and, April 21, by Drs. Ralph V. Ellis, Minneapolis, on "Specific Treatment of Hay Fever with Emphasis on Causes of Failure"; Horatio B. Sweetser, Jr., Minneapolis, "Multiple Sensitivity and Its Interpretation in the Allergic Patient," and Elmer M. Rusten, Minneapolis, "Allergic Skin Eruptions Due to Inhalant Factors."

MISSOURI

Hospital News.—A memorial plaque will be placed in the library of St. Anthony's Hospital, St. Louis, in honor of the late Dr. Harvey S. McKay, who was a member of the staff. It is also planned to maintain the library in his honor. —The newly erected Park Lane Memorial Hospital, St. Louis, was recently opened to the public. Dr. Frank J. Smith is superintendent.

Personal.—Dr. Malvern B. Clopton, Clarksville, has been appointed to a term of four years on the state board of health. —Dr. Rutherford B. H. Gradwohl has resigned as director of the laboratory and member of the pathology and bacteriology staffs of the St. Louis County Hospital; he has been succeeded by Dr. Hollis N. Allen. —Dr. Lon M. Tillman, Kansas City, has been appointed by Governor Lloyd C. Stark on the commission of nine to study the economic, industrial, education and civic needs of the Negroes of Missouri; he has been assigned to study the health aspect. —Dr. William P. Dysart, Columbia, has completed fifty years in the practice of medicine.

MONTANA

Personal.—Dr. Julio Raymond Soltero, Lewistown, has been appointed health officer of Fergus County, succeeding Dr. John C. Dunn, Lewistown, who has become head of the state hospital at Warm Springs.

Society News.—The Mount Powell Medical Society was addressed in Anaconda, April 30, by Drs. George W. Swift, Seattle, on "Diagnosis of Brain and Cord Tumor" and Walter A. Fansler, Minneapolis, "Carcinoma of the Rectum and Sigmoid." Dr. Swift also conducted a clinic in the afternoon. —The Montana Society of Internists was created at a recent meeting in Great Falls. Dr. Louis H. Fligman, Helena, was made chairman and Dr. Herbert C. Watts, Fort Harrison, secretary. An annual meeting will be held. —At a recent meeting of the Montana Academy of Oto-Ophthalmology, Dr. Arthur L. Weisgerber, Great Falls, was elected president, and Dr. Ashley W. Morse, Butte, was elected secretary.

NEW YORK

Alumni Clinical Day at Buffalo.—The Alumni Association of the University of Buffalo School of Medicine held its third annual clinical day April 17 at the Hotel Statler, Buffalo. During the day the following speakers addressed the meeting:

- Dr. Grover C. Penberthy, Detroit, Management and Treatment of Burns.
- Dr. Richard H. Jaffé, Chicago, Differential Diagnosis of Enlargement of the Lymph Nodes.
- Dr. Henry Page Mauck, Richmond, Va., Injuries Around the Knee Joint.
- Dr. Bernard Fantus, Chicago, Some Useful Prescriptions.
- Dr. Charles Gordon Heyd, New York, President, American Medical Association, Surgical Diseases of the Colon.
- Dr. Chevalier L. Jackson, Philadelphia, Bronchoscopy and Bronchography as Aids in the Diagnosis of Bronchopulmonary Disease.
- Dr. Hugh Cabot, Rochester, Minn., Management of Pyelonephritis.
- Dr. Heyd delivered an address at the annual dinner on "The Future of Medicine."

Dr. Ordway Resigns as Dean.—Dr. Thomas Ordway, since 1915 dean and professor of medicine, Albany Medical College, has resigned as dean, effective July 1, but will continue in his professorial capacity. His successor will be Dr. Robert Sydney Cunningham, professor of anatomy at Vanderbilt University School of Medicine, Nashville, Tenn., who will occupy a similar position at Albany together with his duties as dean. Dr. Ordway received his medical degree at Harvard in 1905 and was identified with the Boston City Hospital and Harvard University Medical School until 1909, when he was appointed director of the Bender Hygienic Laboratory, Albany, N. Y., becoming in the same year professor of pathology and bacteriology at Albany Medical College. In 1911 he returned to Boston as physician in charge of the Huntington Hospital at Harvard. He was appointed dean and professor at Albany in 1915. A native of Anderson, S. C., Dr. Cunningham graduated from Johns Hopkins University School of Medicine, Baltimore, in 1915. He joined the teaching staff of his alma mater in the same year, remaining there until 1925, when he resigned to become professor of anatomy at Vanderbilt.

Meeting of Proctologists.—The thirty-eighth annual meeting of the American Proctologic Society will be held in Atlantic City, N. J., June 6-8, with headquarters at the Marlborough-Blenheim. Among the features of the program will be symposiums on anesthesia and cancer of the rectum and colon. Speakers for the first will be Drs. Benjamin Haskell, Philadelphia; Joseph F. Saphir, New York, and Warren W. Green, Toledo, Ohio. For the second the speakers will be Drs. William H. Daniel, Los Angeles; George E. Binkley, New York; Edward G. Martin, Detroit; Robert A. Scarborough, San Francisco; Jerome M. Lynch and Georg Johnson Hamilton, New York. The society announces that admission to its meetings is now by invitation only.

American Heart Association.—The thirteenth annual meeting of the American Heart Association will be held at Hotel Haddon Hall, Atlantic City, N. J., June 7-8. Dr. Walter B. Cannon, Boston, will deliver the George Brown Memorial Lecture Monday afternoon on "Factors Affecting Vascular Tone." Other speakers on the program include:

Drs. Edgar V. Allen and Alfred W. Adson, Rochester, Minn., The Physiologic Effects of Extensive Sympathectomy for Essential Hypertension.
Dr. Burton E. Hamilton, Boston, Heart Disease in Pregnancy.
Dr. Wallace M. Yater, Washington, D. C., The Histopathologic Basis of Bundle-Branch Block.
Drs. Joseph B. Vander Veer and Robert F. Norris, Philadelphia, The Electrocardiographic Changes in Acute Pericarditis: A Clinical and Experimental Study.
Dr. J. C. Venno, of Quinidine Sulfate Intravenous.

Meeting on Rheumatic Diseases.—The American Association for the Study and Control of Rheumatic Diseases will hold its fourth annual meeting and sixth conference on rheumatic diseases Monday, June 7, at the Hotel Chalfonte-Haddon Hall, Atlantic City, under the presidency of Dr. Russell L. Cecil, New York. Among the speakers will be:

Dr. Cecil, The Necessity of Certain Criteria for the Diagnosis and Cure of Rheumatoid Arthritis.
Drs. Readie Garfield Snyder, Franz J. Lust, Cornelius H. Traeger and Le Moyne C. Kelly, New York, Gold Salts Therapy in Chronic Arthritis.
Dr. Edwin P. Jordan, Chicago, Critical Evaluation of Vaccine Therapy in Rheumatism.
Drs. Edward F. Bland and Thomas Duckett Jones, Boston, Fatal Rheumatic Fever.
Drs. Harry E. Thompson and Bernard L. Wyatt, Tucson, Ariz., Experimentally Induced Jaundice.
Dr. Philip S. Hench, Rochester, Minn., Further Observations of the Effect of Jaundice on Atrophic Arthritis and Fibrositis.

Session on Internal Secretions.—The twenty-first annual meeting of the Association for the Study of Internal Secretions will be held at Haddon Hall, Atlantic City, June 7-8, under the presidency of Dr. Francis M. Pottenger, Los Angeles. Included among the speakers will be:

Philip Bard, Ph.D., Baltimore, The Neural Basis of Estrual Behavior in the Cat.
Dr. Cyril N. H. Long, New Haven, Conn., The Mechanism of the "Diabetogenic" Action of the Pituitary.
Dr. Edgar Obermer, London, Thyroid Instability, Its Detection, Measurement and Treatment.
Dr. Roy G. Hoskins, Boston, Effects of Insulin on Cell Proliferation.
Dr. Daniel R. Mishell, Newark, N. J., Familial Intersexuality—A Report of Three Unusual Cases.
Frank A. Hartman, Ph.D., Columbus, Ohio, Certain Aspects of the Adrenal Cortex in Relation to Carbohydrates.
Dr. James B. Collip, Montreal, Further Studies on Anterior Lobe Hormones.

The annual dinner will be held Monday evening, when Dr. Pottenger will deliver his address and Dr. Levellys F. Barker, Baltimore, will discuss the "Progress of Endocrinology."

Meeting of Gastro-Enterologists.—The fortieth annual meeting of the American Gastro-Enterological Association will convene at the Hotel Claridge, Atlantic City, June 7-8, under the presidency of Dr. Chester M. Jones, Boston. The following, among others, will speak:

Dr. Louis E. Barron, New Haven, The Influence of the Extrinsic Innervation on the Human Gastric Motor Mechanism.
Drs. Harry Shay and Jacob Gerson-Cohen, Philadelphia, Experimental Studies in Gastric Physiology in Man.
Dr. Edward B. Benedict, Boston, Hemorrhagic Gastritis: A Gastroscopic Study.
Dr. Anton J. Carlson, Chicago, Studies on the Motility of the Colon.
Dr. Theodore A. Albansen, San Francisco, Deposition of Glycogen in Normal and Aged Livers After Oral and Intravenous.

Dr. Paul D. White, Boston, will deliver the Alvarez Lecture Monday on "The Differential Diagnosis of Cardiac and Gastro-Intestinal Disorders," and speakers at the annual dinner that evening will be Kirtley F. Mather, Ph.D., professor of geology at Harvard, on "A Geologist in Prophetic Mood," and Major Thomas Coulson, formerly of the British Military Intelligence Service, "Famous Women Spies."

Hospital Conference.—The first meeting of the Southeastern Hospital Conference, sponsored by the hospital associations of Alabama, Florida and Georgia, was held in Atlanta,

April 8-10. Mr. C. L. Sibley, superintendent, Birmingham Baptist Hospital, Birmingham, was chosen president of the conference for next year and it was decided to meet in Birmingham in April. Dr. Luther C. Fischer, Atlanta, was elected president of the Georgia Hospital Association, and Rev. Charles W. Curry, Savannah, secretary. Officers of the Florida Hospital Association include T. F. Alexander, Tampa, president, and Miss Gertrude Overstreet, Gainesville, president-elect. Officers of the Alabama association were not elected at this time. Speakers at the conference included Drs. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association; Bert W. Caldwell, Chicago, and Watson S. Rankin, Charlotte, N. C.

Academy of Tuberculosis Physicians.—The first scientific meeting of the American Academy of Tuberculosis Physicians, organized in 1936 during the annual session of the American Medical Association, will be held at the Hotel Dennis, Atlantic City, N. J., June 8. On the preliminary program are the following speakers, among others:

Dr. Max Pinner, Ithaca, N. Y., The Pathology of the Primary Tuberculous Complex.
Dr. Bruce H. Douglas, Detroit, The General Practitioner's Part in Controlling Tuberculosis in a Political Unit.
Dr. Charles O. Giese, Colorado Springs, Routine Treatment of Pulmonary Tuberculosis.
Dr. Chester A. Stewart, Minneapolis, Primary Tuberculous Infection Attack Rate.
Dr. Harry D. Lees, Philadelphia, The Earliest Manifestations of Pulmonary Tuberculosis in the Adult.
Dr. Edward W. Hayes, Monrovia, Calif., Dangers of Delay in Instituting Collapse Therapy in Pulmonary Tuberculosis.
Dr. Benjamin P. Potter, Secaucus, N. J., Bilateral Collapse Therapy.
Dr. Frank S. Dolley, Los Angeles, A Summary of the Results of Thoracoplasty.

Dr. Giese is president of the academy and Dr. Arnold Minnig, Denver, is secretary.

Guggenheim Fellowship Awards.—The John Simon Guggenheim Memorial Fellowships for 1937 include the following of medical interest:

Florence B. Seibert, Ph.D., professor of biochemistry, Henry Phipps Institute, University of Pennsylvania, Philadelphia, to study molecular sizes and cataphoretic mobilities of the active principle of tuberculin by means of the ultracentrifuge in the laboratory of Dr. Theodor Svedberg, University of Uppsala, Sweden.

James B. Sumner, Ph.D., professor of biochemistry, Cornell University Medical College, New York, to work also with the ultracentrifuge at Uppsala on determination of molecular weights of certain enzymes and crystalline proteins.

Eric G. Ball, Ph.D., associate in physiologic chemistry, Johns Hopkins University, Baltimore, to study mechanism of biologic oxidations at several European laboratories.

William Louis Straus Jr., Ph.D., associate in anatomy, Johns Hopkins, to study embryologic development of muscle function at the University of London.

Samuel R. M. Reynolds, Ph.D., assistant professor of physiology, Long Island College of Medicine, Brooklyn, to study the action of estrogen on uterine muscle at the University of Rochester.

Herbert Shapiro, research assistant in physiology at Princeton University, to investigate nerve activity at low oxygen pressure in studies at Plymouth, England, Naples and the University of London.

William Clouser Boyd, Ph.D., assistant professor of biochemistry, Boston University School of Medicine, to continue studies of blood groups among peoples in southwestern Asia.

Dr. Allan Lyle Grafflin, associate in anatomy, Harvard University, received a reappointment making possible continuation of study of the kidney.

FOREIGN

Yellow Fever Appears in Hongkong.—Two cases of yellow fever were reported in Hongkong, May 11, according to the Chicago Tribune. It has heretofore been unknown in Asia, the report stated.

Awards for Encephalitis Research.—The University of Bern, Switzerland, directs attention to its foundation to promote research in lethargic encephalitis. Prizes are awarded each year for work that shows real progress in the diagnosis or the treatment of the disease. The smallest prize amounts to about 1,000 Swiss francs. Applications should be sent to the dean of the medical faculty, which allocates the prizes at the end of the year.

Public Health Progress in Siam.—A new regimen of national hygiene is being attempted in Siam under the direction of Dr. Nai Young Huar, medical inspector of public health. Dr. Huar graduated from the University of Tennessee College of Medicine in 1924 and received a certificate of public health from Harvard School of Public Health in 1933. Dr. Huar is at present conducting a campaign to improve the dietary of the Siamese, urging them to eat a varied diet instead of a diet consisting mostly of rice. Siam has a plentiful supply of proteins and other foods, but because of ignorance and sometimes questionable ideas, the average inhabitant does not eat them. The budget for health service has been increased.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 30, 1937.

The Prevention of Maternal Mortality

The fact that while the general and the infant mortalities have been considerably diminishing the maternal mortality does not improve has exercised the government and the health authorities for some time. The Ministry of Health has had a special investigation into maternal mortality made by its medical officers, with the assistance of Sir Comyns Berkeley in a consultative capacity. For investigation forty-five areas were elected where maternal mortality has been more than 5 per thousand live births, twelve areas where it has more than the national average of 4, and twelve where it has been below the average. The object was to see whether careful examination of the circumstances attendant on deaths would indicate further measures, including matters of environment as well as treatment, which might be taken to reduce the mortality.

In a report that has just been published the investigators state that, though the total number of deaths due to child-bearing is relatively small (less than 8 per cent of the total deaths from all causes in women from 15 to 45 years of age) and motherhood in this country has reached a comparatively high level of safety, the rate is susceptible of reduction, for many of the deaths are preventable. A hundred years ago the rate is believed to have been 10 per thousand live births, so that there has been a considerable reduction. But for a number of years the rate has remained obstinately at 4, despite the great expansion in the maternity services and the remarkable improvement in the general health of the community.

The report states that in a number of cases the chances of recovery would have been greater had a practitioner experienced in midwifery been in attendance, had he had the assistance of an obstetric expert, or had the patient been admitted to the hospital earlier. It is therefore suggested that those general practitioners who undertake obstetric work under a local authority should be interested, experienced and actively engaged in the practice of midwifery and have sufficient time for unhurried work. It is recommended that in any maternity scheme the local authorities should provide one or more obstetric consultants. In certain types of case, arrangements should be made for bringing to the patient the services of a skilled hospital staff instead of subjecting her to the risks of transference to a hospital. Emergency units should be organized at maternity hospitals or at the maternity departments of general hospitals. Antepartum clinics conducted by an obstetric specialist, to which difficult cases can be referred, should be provided. The authorities should also make arrangements to secure an adequate supply of milk or other suitable food during pregnancy.

The Conservative Treatment of Acute Infections

In the *Edinburgh Medical Journal* Sir David Wilkie, professor of surgery in the University of Edinburgh, makes a strong plea for the conservative treatment of wound infections. He points out that Lister's great advance led to an endeavor to shorten and relieve the period of illness of acute infective lesions by means of the knife. The end of the last century and the early years of this century saw the zenith of active surgical attack in acute inflammation, whether in soft parts, serous cavities or bones. Pus must be evacuated at the earliest opportunity; if not present, tension must be relieved by free incision; open dependent drainage must be secured. But today the outlook is more biologic and it is recognized that the local and general changes of the reaction to local infection are an attempt to localize the infection and to mobilize the defenses of the body. Nothing should be done to interfere with this.

INFECTED PUNCTURED WOUND OF THE HAND WITH LYMPHANGITIS

The type of infected punctured wound of the hand in which there is lymphangitis is common in physicians and nurses and may be dangerous when derived from an infected lesion in a patient. Professor Wilkie considers it a grave mistake to incise the hand or finger in the first forty-eight hours. One must not break the barriers which nature is trying to set up. The value of treatment by passive congestion, according to the Bier method, is not sufficiently recognized. Repeated hot fomentations should be applied and 30 cc. of concentrated antitoxic serum given subcutaneously after desensitization.

BOILS AND CARBUNCLES

Incision of a boil on the supposition that it is a form of abscess Professor Wilkie considers wrong in theory and mischievous in practice. Complete immobilization by strapping is the most effective treatment. For carbuncle he recommends the same treatment. Probably bacteriophage develops under the occlusive dressing and inhibits the growth of *Staphylococcus aureus*. In severe toxic cases with danger to life he gives large doses of staphylococcus antitoxic serum.

ACUTE OSTEOMYELITIS

In acute osteomyelitis, physicians have been slow to abandon the dogmatic teaching of radical opening of the bone. But more and more it is being recognized that the bone lesion is a fixation abscess in a staphylococcal septicemia. Professor Wilkie has been immensely impressed by the Winnett Orr treatment—moderate free opening of the bone, packing the wound with sterile gauze treated with petrolatum and enclosing the whole limb in a plaster cast for from three to six weeks. The results are a striking illustration of the value of rest in acute inflammation and of the healing properties of wound secretions, commonly regarded as dirty and offensive. He considers that here again is a bacteriophage effect. In cases of profound toxemia, antistaphylococcus serum, with conservative local treatment, is the only hope.

ACUTE PERITONITIS

As a house surgeon Professor Wilkie participated in the heyday of the surgical attack on acute peritonitis, but experiments that he performed on rabbits by injecting a coccus of standard virulence into the peritoneum of rabbits immunized in greater or less degree showed that thick purulent exudate may be made up mainly of healthy leukocytes and is a favorable sign, while clearer exudate may be swarming with organisms and be of fatal import. The great lesson was that there is no surgical treatment for general peritonitis, though it may be prevented by timely surgery. It may be survived by natural resistance and certain complications may require surgical aid, but passive immunity by serum, fluid replacement if rendered necessary by vomiting, heat and morphine, as in the old days, are the things in which confidence must be placed. If streptococcus is present in the pus, antitoxic serum is indicated.

ACUTE PLEURAL EMPYEMA

When the late Professor Greenfield asked surgeons to operate on empyemas which he had been treating by aspiration for weeks, caustic comments were made. It took the appalling death rate of early open drainage of streptococcal empyemas in the American army in the great war to bring home to the profession Greenfield's teaching. Today physicians no longer condemn aspiration but use it until the pneumonic inflammation is on the wane and adhesions of lung to parietal pleura have formed. Then the residual pleural abscesses may be drained with safety. The swing back of surgery to a conservative outlook in these and other infective lesions shows the broader biologic outlook that is replacing the cruder and more dogmatically mechanical one of the skilful and anatomically trained craftsman.

PARIS

(From Our Regular Correspondent)

May 1, 1937.

The Crisis as it Affects the Profession

As referred to in previous letters, the *Concours médical*, a journal which devotes special attention to public relations problems confronting the profession, has received a number of replies from practitioners to the question of whether or not state medicine is desirable. Some are in favor of becoming government officials because it would assure them security in old age, which would be far better than to continue to see their means of livelihood taken away by the existing social insurance law and similar attempts on the part of the present socialist government to invade private practice. Other correspondents are strongly opposed to the idea of the profession giving up the existing personal relation of physician and patient, which is indispensable to success in treatment. A recent article by Dr. Mauguier of one of the smaller departments of France is quoted in the March 21 *Concours médical*. He states that there are three possible ways in which preventive medicine can be organized if the state insists on a greater degree of socialization of medicine than it claims to exist at present. These three are: 1. Organization by the state or by bureaus directly dependent on it, which would lead to making all physicians either state officials or at least paid by departments, communes, hospital commissions, social insurance bureaus, mutual health and accident private companies, or endowed foundations. 2. By the organized medical profession assuming complete charge of preventive medicine. This is the offer which is being considered by the government here at present. The profession, through its "*Syndicats médicaux*" which looks after the public relations of the profession, has unanimously voted to do this for the state, as referred to in previous letters. 3. By physicians as individuals.

In an editorial (*Concours médical* of March 21) Dr. Noir agrees with Dr. Mauguier that these three methods of organizing preventive medicine are the only feasible ones. Dr. Noir goes further and states that there is no sharp line of demarcation between preventive medicine and treatment of the sick. This is well illustrated in the present status of such a disease as syphilis. Is not the treatment, promptly instituted and periodically controlled by serologic tests, the only preventive method to check the spread of the disease? This has been carried out on a large scale in Paris and one rarely sees patients with complications of the primary or secondary stages. The same is true of pulmonary tuberculosis as well as for carriers of the acute infectious diseases. Antepartum care, medical inspection of schools, internment of cases of mental disease, and physical culture can all be grouped as preventive medicine efforts which have encroached on treatment of the sick to such an extent as to render this part of the physician's work almost superfluous. The greater the progress made in medical science, the less does there appear to be a difference between preventive and actual care of the sick. In view of this realistic state of affairs, what sort of attitude should the profession adopt? Sooner or later it will be forced to recognize the fact that for certain centers of population, for certain countries, only state medicine, or at least some form of government subsidy, will suffice. In other centers or countries, where unity exists among physicians, medical organization can be taken charge of by groups of physicians under the supervision of their syndicates or county societies. In addition, medicine as practiced by individuals as such should be able to continue to exist, especially in rural communities, provided the laboratory facilities in hospitals or rural health centers are placed at the disposal of such general practitioners. An ambulance organization ought to be so situated, near rural districts, as to be prepared to transport the sick to the hospital. These two things have been done in France for the indigent sick but not for the average wage earners.

Certain Eczemas and Urticarias

A paper on the acid-base equilibrium in certain eczemas and urticarias was read by Prof. Pasteur Vallery-Radot and his associates at the March 5 meeting of the Société médicale des hôpitaux. The variations of the acid-base equilibrium, hydrogen ion concentration of the urine and alkali reserve were noted in twenty-five cases of eczema and urticaria. They noted a frequent disturbance of the acid-base equilibrium in these two diseases, as well as in Quincke's edema. They found either a state of acidosis or of alkalosis and succeeded in reestablishing the acid-base equilibrium by diets and urine acidifiers or alkalinizing drugs, depending on the individual case. After a few days treatment, the hydrogen ion concentration of the urine and the alkali reserve became normal again, accompanied by an improvement in or disappearance of the cutaneous manifestations. An interesting case was reported of a patient who had urticaria only when there was acidosis and, on the other hand, only asthma when an alkalosis existed. This is a typical example of humoral instability and shows the influence of alkalosis and of acidosis on certain morbid conditions. The authors called attention to the necessity of always taking into consideration an acid-base dysequilibrium as a factor which certainly favors the appearance of cutaneous and probably of asthmatic manifestations.

Obligatory Mixed Vaccination of Medical Students

At the July 23, 1936, meeting of the Académie de médecine a committee was appointed to study the advisability of obligatory vaccination (antityphoid, antidiphtheria and antitetanic) of all medical students. The report of this committee was read by Professor Tanon at the meeting of the society March 9 of this year. The risk of tetanus infection being minimal, one could exclude this form of vaccination. However, the use of the mixed vaccine (antityphoid and antidiphtheria), the latter by the Ramon anatoxin, should be made obligatory for all medical students as soon as possible after beginning their first year. The report of the committee, subject to the approval of the ministers of public health and national education, was unanimously adopted.

Bacillus Ramosus Infection

Bacillus ramosus, described by Veillon and Zuber, belongs to a group of strictly anaerobic bacteria, which develops only at incubator temperature, does not form spores and is difficult to cultivate on artificial mediums. The bacilli are constantly present in the mouth, pharynx, intestine and female genital tract. The bacillus is gram positive and is termed *ramosus* because of the ramified form in which it is found in pathologic exudates and in cultures. It was found by Veillon and Zuber in the pus from cases of pulmonary gangrene, otitis, mastoiditis and appendicitis. In a few instances it has been found in blood cultures.

At the March 16 meeting of the Académie de médecine André Lemierre, Reilly and Bloch-Michel reported five cases of *Bacillus ramosus* infection observed at the Claude-Bernard hospital. The first case was one of gas gangrene due to *Bacillus ramosus* and aerobic hemolytic streptococci following a hypodermic injection. In contrast to infections due to *Bacillus perfringens*, which are uniformly fatal, the patient recovered after the use of large incisions. In the four other patients, *Bacillus ramosus* was isolated from the blood. In one of the latter patients the fact that the blood culture was positive only once out of five times raises the question as to whether the bacillus could have been only a transitory invader. In the three other (blood culture positive) cases the authors were also inclined to believe that the organism was a secondary invader. Compared to the gravity of infections due to *Bacillus funduliformis*, those due to *Bacillus ramosus* are comparatively benign. Hence one cannot consider infections due to the latter as being true septicemias.

BERLIN

(From Our Regular Correspondent)

April 28, 1937.

The Misuse of Hypnotics

In recent years the misuse of hypnotic drugs has steadily come to the fore. From several countries an increase in the number of cases has been reported. The disquieting observation has also been made that, if a patient is suddenly deprived of the soporific, threatening phenomena of abstinence will appear just as in morphinism and these may in some cases lead to a fatal termination. Hoff and Kauders, as well as Seevers and Tatum, observed in animal experimentation that a prolonged administration of barbital (veronal) leads to a toxic state and that if a sudden deprivation then takes place it will be followed by severe phenomena of abstinence. Further experiments (reported in the *Klinische Wochenschrift*) have recently been carried on with dogs by H. Oettel and A. Krautwald at the Berlin Pharmacologic Institute. These investigators undertook to determine whether an addiction accompanied by phenomena of abstinence is favored by a more or less ready decomposition of the hypnotic. Four dogs received daily doses of various barbituric acid derivatives over a period of from four to seven months. The substances administered were (1) diethylbarbituric acid (barbital, veronal), (2) phenylethylbarbituric acid (phenobarbital, luminal), (3) cyclohexenyl ethyl barbituric acid (cyclobarbital, phanodorn) and (4) isopropyl-b-bromallyl barbituric acid (nostal). The dosages were selected in such a way that the dogs were just able to take spontaneous nourishment. In order to determine whether with habituation the decomposition within the organism would exhibit changes, the content in the urine was isolated, weighed and identified. The following observations were made: 1. Doses of barbital, which at the beginning would induce a deep sleep of some seven hours' duration, came gradually to induce shorter periods of sleep; at the end of seven months, for example, the same dose induced a sleep of from two to three hours. Sudden deprivation at the end of seven months was not followed by any phenomena of abstinence whatever. On the average, about 65 per cent of the substance was expelled unchanged. The habituated organism was thus able to eliminate the drug more rapidly than the unhabituated organism, although to be sure the decomposition was unaltered. 2. Habituation to phenobarbital was relatively quicker, initial severe metabolic disturbances vanished after a few weeks, and after several months the same dose produced but slight stupefaction and uncertainty of movement in the dogs. Phenomena of abstinence, in the sense of excitation, did not appear when the dosage stopped; on the contrary, a mild depression was observed. Despite visible habituation, some 25 per cent was excreted in unaltered form. 3. In the case of cyclobarbital too the dosage necessary to induce a constant sleep of from six to seven hours' duration had gradually to be increased from 75 mg. per kilogram to 130 mg. No phenomena of abstinence appeared when the drug was suddenly stopped. The amount decomposed remained constantly 20 per cent of the quantity administered in spite of increased dosage. Elimination appeared to take place more quickly. 4. Habituation to nostal was surprisingly rapid. At the beginning a dose of 50 mg. per kilogram induced deep sleep of from six to seven hours, but after a few days even doses of from 75 to 90 mg. per kilogram failed to induce sleep and at the end of a month scarcely any hypnotic effect was produced. Then only after receiving a dose of 195 mg. per kilogram did the dog sleep again for a few hours. The animal became habituated to even this high dosage. No phenomena of abstinence were observed. In the urine the bromide of nostal was found again, almost completely split up, as inorganic bromide. At the start of the experiment some 25 per cent was

excreted but four months later at the finish only 11.4 per cent was excreted. Thus, in contrast to the other barbituric derivatives, nostal was easily decomposed. (Individual reflex and metabolic manifestations and so on are not here particularized, since they are characteristic only of experiments with animals.)

These investigations showed in the case of all the substances studied that decomposition within the organism, when considered in proportion to the apparent habituation, was observed to remain almost constant. One is led to conclude, therefore, that the nervous system itself must tend to become less sensitive to the drug. Thus regular administration of barbituric acid derivatives over a long period may indeed lead to a chronic intoxication, but somatic or psychic phenomena of excitation can appear (during the period of administration or immediately after deprivation) only if the dosage is excessively high. Accordingly, it may be concluded on the basis of these experiments that a somatic addiction and "genuine" phenomena of abstinence, such as characterizes morphinism, for example, cannot be produced by hypnotic drugs of the barbituric group.

The Effects of War Gas

Dr. Muntsch, an authority on war gases, recently reported before the Tuberculosis Society of Southeastern Germany on his recent studies of the principal action of the gases on the respiratory and vascular systems. The generally accepted theory that the principal effect of phosgene (green cross) is a hydrochloric acid corrosion of the pulmonary alveoli fails to offer a satisfactory explanation for the appearance of pulmonary edema. It is a striking fact that the alveoli alone are attacked, whereas the upper respiratory passages remain uninvolved and furthermore pure hydrochloric acid vapor otherwise produced pulmonary edema only in concentrations 800 times stronger than phosgene. According to other theories, the absorption of phosgene into the blood stream results in alterations and softening of the brain, and the cerebral disturbance extending by way of the nervous system finally gives rise in turn to the pulmonary edema.

In experiments with rabbits, the electrocardiogram recorded a marked bradycardia and diminished respiration within three to four minutes following the inhalation of phosgene. Thus it is a question of a vagus stimulation that subsides as soon as the subject is no longer exposed to the gas. It seems singular that pulmonary edema should first appear several hours after the inhalation of phosgene. Prof. Rudolf Nissen, who for many years served as head physician of the Sauerbruch Clinic, Berlin, and who now resides in Istanbul, has established the fact that a strong stimulation of the vagus conduces to increased permeability of the pulmonary alveoli.

Accordingly, the indicated treatment (prophylactic or curative) of the pulmonary edema is narcosis with chloroform, tribrom-ethanol or a similar general anesthetic. In this way the stimulation of the vagus will be inhibited.

Death of Hermann Kümmell

Prof. Hermann Kümmell died at the end of February, just short of his eighty-fifth birthday. For German surgeons his passing means the loss of an illustrious colleague. When Hamburg University was founded not long after the war, Kümmell, who had served for many years as director of a large municipal hospital, was appointed ordinarius in the new school. Kümmell's decades of responsible service were marked by signal contributions to surgery. He was active in all branches of the field. He was the first German surgeon to perform an appendectomy, and this at a time when the operation was still considered a risky affair. As early as 1890, when appendicitis was still known as perityphlitis, Kümmell advocated radical interventions; by 1905 he had performed 1,000 appendectomies. He also called special attention to intestinal

obstructions, tumors of the bladder and peritoneal tuberculosis. Kümmell contributed notably to improved surgery of the brain and spinal cord, to the surgical treatment of prostatic hypertrophy, and particularly to the surgery of the gallbladder. As early as 1886 he performed the first choledochotomy. He was among the first to establish a roentgen center as a separate unit of a surgical section. The syndrome called after him "Kümmell's disease" or "Kümmell's kyphosis" has also come to be recognized. In collaboration with Bier and Braun, Professor Kümmell edited a body of work on surgical procedures that has become classic. His numerous descriptive monographs on urologic problems were particularly valuable contributions. Kümmell, the man, had about him something chivalrous and distinguished that commanded the admiration and respect of all who knew him.

MOSCOW

(From Our Regular Correspondent)

April 3, 1937.

Congress on Skin and Venereal Diseases

The fourth All-Union Congress on Skin and Venereal Diseases was held in Moscow, January 27-February 2. The following questions were discussed: (1) the tasks of combating venereal and skin diseases during the next five years, (2) developments in the treatment of syphilis and (3) skin reactions. Simultaneously a urologic conference was held, dealing principally with the treatment in renal diseases and gonorrhea. About 1,000 physicians and many guests participated. Among them were Henri Sellier, health minister of France, Professor Cavaillon, the general secretary of the International League for Struggle against Venereal Diseases, and Dr. Hecht of Czechoslovakia.

Since the last congress, which took place about seven years ago, venereal diseases in our country have sharply decreased. In 1925 Dr. Aubrecht examined all the inhabitants of 1,308 farms in the Vedeneye district of the Voronezh province, where he detected 1,649 cases of syphilis in 420 households. His investigations of the same households in 1935 gave only fifty-two patients in thirty households. A similar survey by Dr. Smelovsky in the Kuibyshev province in 1926 and 1936 revealed a syphilis reduction of 90 per cent. In the national republics, where the incidence of syphilis was even greater than in the rural population of Russia, there was an unusual decline in venereal diseases. In Kirghizia, between 1926 and 1935, the reduction is 67 per cent; in Udmurtia, 82 per cent; in Yakutia, 89 per cent (between 1929 and 1936). In the Buryat-Mongolia district, syphilitic infection among children under 10 years of age was 10.6 per cent in 1926, and 1.5 per cent in 1935.

In total, as was summarized in the recent report of Professor Raits, director of the Congenital Syphilis Clinic of the Maternity Protection Institute of the People's Commissariat of Health, congenital syphilis among children declined from 0.3 per cent in 1927 to 0.01 per cent in 1936. Professor Davidovsky of Moscow, a specialist in morbid anatomy, declared that in 110,000 necropsies performed in Moscow over a ten year period syphilis as a cause of morbidity dropped from 3.8 in 1928 to 1.6 in 1932, a reduction of 58 per cent.

The congress discussed measures for achieving the complete disappearance of syphilis in villages and national districts, where lack of elementary sanitary and medical measures formerly made the infection general, and it also discussed measures for the complete eradication of congenital syphilis. In all medical colleges, departments of male and female gonorrhea will be established. During 1937-1938 all gynecologists are to attend special courses to keep posted on recent developments in the treatment of venereal diseases.

In the House of Trade Unions a special session of the congress was held celebrating the fifteenth anniversary of the establishment of the State Institute of Skin and Venereal diseases, directed by Prof. V. M. Bronner. The next All-Union Conference will be held in 1941 in the city of Baku.

New Health Commissar

By decision of the presidium of the All-Russian Central Executive Committee, issued March 15, Peter Grigorievich Sergiyev has been appointed people's commissar of health of the Russian Socialist Federative Soviet Republic, replacing Gregory N. Kaminsky. The new commissar was born in 1893 and graduated from the Kazan Faculty of Medicine in 1918. He took part in the imperialist war and in the civil war. In 1927 he began his scientific work in the Moscow Tropical Institute and in 1934 became director of this institute. In 1935 he was appointed a member of the malaria commission of the Hygienic Committee of the League of Nations. For his scientific work in combating malaria and in parasitology, Sergiyev was awarded the degree of a doctor of medical science.

For assistant peoples' commissar of health of the Soviet Union, the presidium of the Central Executive Committee of the Union of Socialist Soviet Republics appointed S. T. Kantorovich, former People's Commissar of Health of the Ukrainian Soviet Socialist Republic, and Yekaterina G. Karmanova.

Medical Airplane Service

Dr. D. E. Palms, director of the Administration of First Aid Aviation, working under the auspices of the Executive Committee of the Red Cross and the Red Crescent Society, recently announced the operation of aviation first aid units in forty towns of the Soviet Union, including the Far North, the Pacific Coast, the Ural Mountains region, the Pamirs Mountain region and the Kazakhstan steppes. At the disposal of this first aid aviation service are a large number of planes of several types, including the S-2 amphibian. Each airplane is equipped with special stretchers, full sets of linen, warm clothing, medical instruments and medicines. The first aid aviation shows a marked growth, as can be seen from the accompanying table.

Growth of First Aid Aviation

	Number of Trips	Total of Hours	Kilometers Covered	Number of Patients
1935.....	1,499	3,972	476,640	365
1936.....	3,575	11,131	1,335,720	570

In 1936 the Moscow Province Aviation and Gliding School prepared for first aid aviation service a group of physicians and nurses, training half of them in parachute jumping, because physicians frequently have to descend in parachutes to render medical aid.

Marriages

FRANK H. HENDRICKS, Cleveland, to Miss Anna Belle Spaulding of Whitesboro, N. J., February 21.

GEORGE ALEXANDER LORD to Miss Katherine Ethel Lemon, both of Rochester, Minn., February 17.

JOSEPH WILLIAM MENDOZA, Pittsburgh, to Miss Marian Atran of McKeesport, Pa., April 28.

HARRY I. SNYDER, Pittsburgh, to Miss Sarah Venger of Beaver Falls, Pa., Nov. 8, 1936.

HAROLD L. DAVIS, Trenton, N. J., to Miss Carol Lowenstein of New York, May 14.

JOSEPH PALKOVITZ to Miss Gertrude Palkovitz, both of Pittsburgh, February 23.

Deaths

Joseph Isolin Mitchell ☉ Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1919; member of the American Orthopedic Association, the Clinical Orthopedic Society, the Southeastern Surgical Congress and the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; assistant professor of orthopedic surgery at his alma mater; orthopedic surgeon to the Willis C. Campbell Clinic, Crippled Children's Hospital School and Hospital for Crippled Adults; attending orthopedic surgeon to the Baptist Memorial, St. Joseph's and Memphis General hospitals; aged 41; died, April 7, of acute intestinal obstruction.

Jacob George Brody, Youngstown, Ohio; Western Reserve University Medical Department, Cleveland, 1908; member of the Ohio State Medical Association; instructor of pharmacology at Cornell University, New York, 1910-1922, teaching fellow at his alma mater, 1922-1925; assistant professor of physiology and pharmacology at the University of Georgia, 1925-1926, and later professor of physiology and pharmacology at the New York Homeopathic Medical College, New York; aged 59; member of the staff of St. Elizabeth's Hospital, where he died, March 21, of heart disease.

Dennis Rider Wood Crile ☉ Altadena, Calif.; Harvard University Medical School, Boston, 1917; member of the Illinois State Medical Society; fellow of the American College of Surgeons; at one time associate in surgery and anatomy at the University of Illinois College of Medicine, Chicago; formerly attending surgeon to the Augustana Hospital, Chicago, and surgical consultant to the United States Marine Hospital, Chicago; aged 45; was found dead, March 21, of an incised wound of the throat.

Louis Victor Waldron, Yonkers, N. Y.; New York University Medical College, New York, 1897; member of the Medical Society of the State of New York; past president of the Medical Society of the County of Westchester and the Yonkers Academy of Medicine; for many years director of child hygiene; health officer of Yonkers; aged 69; member of the staff of St. John's Riverside Hospital, where he died, March 13, of pneumonia following an automobile accident.

Isaac Newton Trent, Muncie, Ind.; Kentucky School of Medicine, Louisville, 1881; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; member of the Indiana State Medical Association; for many years a member of the state legislature; formerly senator; member of the staff of the Ball Memorial Hospital; aged 82; died, March 4, of arteriosclerosis and bronchopneumonia.

Robert W. Berrey, Mexico, Mo.; Missouri Medical College, St. Louis, 1883; member of the Missouri State Medical Association; deputy state health commissioner in Audrain County; formerly mayor of Mexico; at various times county coroner, city councilman and member of the board of education; aged 75; died, March 15, of arteriosclerosis.

Edwin Charles Beer, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1903; served with the Canadian Army during the World War; member of the board of education, 1920-1925, and for two years medical examiner; at various times, on the staffs of St. Michael's Hospital and Toronto East General Hospital; aged 60; died, March 3.

Thomas Edward Caulfield ☉ Woburn, Mass.; Harvard University Medical School, Boston, 1902; member of the New England Obstetrical and Gynecological Society; served during the World War; formerly city physician; chief surgeon at the Choate Memorial Hospital; aged 57; died, March 8, of periarteritis nodosa.

Horace R. McCarroll, Walnut Ridge, Ark.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Arkansas Medical Society; past president and secretary of the Lawrence County Medical Society; aged 65; died, March 4, in San Antonio, Texas, of myocarditis, hypertension and arteriosclerosis.

George Edward Maurer ☉ New York; New York University Medical College, 1896; veteran of the Spanish-American and World wars; formerly chairman of the district school board and medical inspector in the department of health; aged 70; died, March 17, in the Wickersham Hospital, of pneumonia.

John Warden McCauley ☉ Rochester, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; one of the organizers, members of the board of directors and member of the staff of the Park Avenue Hospital; aged 76; died, March 10, of mesenteric thrombosis and arteriosclerosis.

Ulysses Grant Anderson, Carbondale, Pa.; Columbian University Medical Department, Washington, D. C., 1902; member of the Medical Society of the State of Pennsylvania; on the staff of the Carbondale General Hospital; aged 71; died, March 28, in St. Joseph's Hospital, of cerebral hemorrhage.

Julian Cowley Smith ☉ Oneonta, N. Y.; University of the City of New York Medical Department, 1892; served during the World War; formerly member of the state legislature; on the consulting staff of the Otsego County Sanitarium, Mount Vision; aged 71; died, March 5, in Lakeland, Fla.

Robert B. McKeeman, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1897; member of the Indiana State Medical Association; vice president of the Fort Wayne Medical Society; on the staff of the Lutheran Hospital; aged 63; died, March 4, of pneumonia.

James Cleon Creel ☉ Parsons, Kan.; Marion-Sims College of Medicine, St. Louis, 1899; on the staff of the Mercy Hospital; medical superintendent of the Missouri-Kansas-Texas Railroad Employees' Hospital; aged 69; died, March 21, of cerebral hemorrhage.

Joseph Wilfred Bonnier, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1899; formerly statistician of the health department of the province of Quebec; aged 64; died, February 12.

John F. Roderer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1884; member of the Medical Society of the State of Pennsylvania; on the staff of the Joseph Price Memorial Hospital; aged 80; died, March 7, of myocarditis.

Sylvester Irvin Arthur, Patoka, Ind.; St. Louis University School of Medicine, 1907; member of the Indiana State Medical Association; past president of the Gibson County Medical Society; aged 73; died, March 15, of angina pectoris and nephritis.

Leo I. Mishkin ☉ New York; University and Bellevue Hospital Medical College, New York, 1910; aged 51; on the staffs of the Jewish Maternity Hospital, Beth Israel Hospital and the Mount Sinai Hospital, where he died, March 4, of heart disease.

Melbourne Mabey ☉ Santa Ana, Calif.; Northwestern University Medical School, Chicago, 1911; fellow of the American College of Surgeons; served during the World War; on the staff of the Santa Ana Clinic; aged 60; died, March 23, of heart disease.

Benjamin Earl Niebel, Brigantine Beach, N. J.; Jefferson Medical College of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; formerly a medical missionary in China; aged 50; died, March 5, of carcinoma of the colon.

Robert Lemmon ☉ Lexington, Va.; University of Virginia Department of Medicine, Charlottesville, 1902; was a lieutenant in the medical reserve corps of the army from 1908-1913; post surgeon to the Virginia Military Institute; aged 58; died, March 6.

Noble Smith Howard, Harlan, Ky.; Louisville Medical College, 1894; member of the Kentucky State Medical Association; past president of the Harlan County Medical Society; member of the city council; aged 77; died, March 5, of coronary occlusion.

Martin John Schwanz ☉ Plymouth, Mich.; Saginaw (Mich.) Valley Medical College, 1900; Detroit College of Medicine, 1904; served during the World War; aged 65; died, March 9, in the Harper Hospital, Detroit, of sarcoma of the tonsil.

William Henry Wundram, Detroit; Indiana University School of Medicine, Indianapolis, 1922; aged 41; member of the staffs of the Receiving Hospital and the Harper Hospital, where he died, March 11, of uremia and cerebral hemorrhage.

Charles Francis Yerdon, Brooklyn; Baltimore Medical College, 1897; member of the Medical Society of the State of New York; served during the World War; member of the staff of the Kings County Hospital; aged 70; died, March 5.

John William Osborne, Champaign, Ill.; Rush Medical College, Chicago, 1902; member of the Illinois State Medical Society; aged 58; for many years on the staff of the Burnham City Hospital, where he died, March 11, of diabetes mellitus.

James Chasey, West Long Branch, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1875; member of the board of education; aged 83; died, March 29, of chronic myocarditis and arteriosclerosis.

William Ward Syp ☉ Centerville, Iowa; State University of Iowa College of Medicine, Iowa City, 1895; formerly on the staff of St. Joseph's Mercy Hospital; aged 64; died, March 3, in Santa Ana, Calif., of coronary thrombosis.

Walter M. Chavis, Pine Bluff, Ark.; Gate City Medical College, Dallas, Texas, 1903; member of the Arkansas Medical Society; formerly sheriff and coroner in Ashley County; aged 59; died, March 14, of cerebral hemorrhage.

Stafford G. Cooke, Yorktown, Va.; College of Physicians and Surgeons, Baltimore, 1886; for many years supervisor in Nelson district of York County, and member of the school board; aged 76; died suddenly, March 2.

Edward Beardslee Skellenger, Trenton, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1875; aged 85; died suddenly, March 8, of chronic myocarditis and arteriosclerosis.

Samuel W. Lehman, Dixon, Ill.; Rush Medical College, Chicago, 1899; member of the Illinois State Medical Society; formerly on the staff of the Dixon Public Hospital; aged 70; died, March 9, of chronic myocarditis.

Ethelbert O. Cosman, Minneapolis; Cincinnati College of Medicine and Surgery, 1885; member of the Minnesota State Medical Association; aged 76; died, March 21, of diabetes mellitus and hypertensive heart disease.

John Joseph Carroll, Covington, Ky.; College of Physicians and Surgeons, Boston, 1920; member of the Kentucky State Medical Association; served during the World War; aged 48; died, March 21, of pneumonia.

Ledru White Bayne, Hattiesburg, Miss.; University of Nashville (Tenn.) Medical Department, 1899; member of the Mississippi State Medical Association; aged 65; died suddenly, March 20, of heart disease.

Dio David Brenaman, Detroit; Wayne University College of Medicine, Detroit, 1936; resident to the Herman Kiefer Hospital; aged 29; died, March 5, in the Harper Hospital, of abscess of the liver.

Mary Alice Burke ☉ Springfield, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1917; member of the staff of the Mercy Hospital; aged 53; died suddenly, March 25, of heart disease.

James Alfred Young, Bunkie, La.; Hospital College of Medicine, Louisville, Ky., 1906; aged 65; died, March 6, in a sanatorium at Lecompte, of uremia, nephritis and carcinoma of the prostate.

Charles Walker Mathers, Carlisle, Ky.; Miami Medical College, Cincinnati, 1879; at one time state senator and bank president; formerly county judge; aged 81; died, March 7, of peritonitis.

William Vernon Davis, Booneville, Miss.; Kentucky School of Medicine, Louisville, 1895; member of the Mississippi State Medical Association; aged 74; died, March 7, of coronary occlusion.

Harry Eugene Wiley ☉ Philadelphia; Jefferson Medical College of Philadelphia, 1891; aged 66; died, March 14, in the Lankenau Hospital, of nephrosis and arteriosclerotic heart disease.

Marie Louise Bauer ☉ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1890; aged 74; died suddenly, March 18, of rupture of the aorta and arteriosclerosis.

Henry A. Cox, Rayville, Mo.; University Medical College of Kansas City, Mo., 1900; aged 58; died, March 26, in a sanatorium at Kansas City, of hypostatic pneumonia and myocarditis.

Sarah V. Tilton, Rossville, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1882; aged 83; died, February 14, in a hospital at Danville, of arteriosclerotic heart disease.

Philip Emanuel Marsh, Otter Lake, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; aged 80; died, March 6, of acute dilatation of the heart.

Luther G. Bass, Chicago; Rush Medical College, Chicago, 1880; member of the Illinois State Medical Society; aged 88; died, March 20, of coronary thrombosis and arteriosclerosis.

John Grover Scifres, Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; aged 53; died, March 1, in the Methodist Hospital, of cerebral edema.

Abraham Finkelppearl, Pittsburgh; University of Pittsburgh School of Medicine, 1913; served during the World War; aged 45; died, March 7, of acute pulmonary edema.

Charles B. Lanneau, Flat Rock, N. C.; Medical College of South Carolina, Charleston, 1869; Confederate veteran; aged 90; died, March 6, of chronic myocarditis.

Samuel Henry Hartwell, Bellepoint, W. Va. (licensed in West Virginia by the state board of health, year unknown); aged 81; died, February 7, of myocarditis.

Coleman Ferrell Pearson, Montgomery, Ala.; Medical College of Alabama, Mobile, 1900; aged 60; was found dead, March 4, of a self-inflicted bullet wound.

John Edward Doerr ☉ Mount Vernon, Ind.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; aged 71; died, March 7, of myocarditis.

Cornelius L. Cork, Ralph, Ala.; Memphis (Tenn.) Hospital Medical College, 1904; aged 57; died, March 4, in the Druid City Hospital, Tuscaloosa, of pneumonia.

Alfred Tremblay ☉ Moline, Ill.; Detroit College of Medicine, 1906; on the staff of the Moline Public Hospital; aged 60; died, March 1, of coronary thrombosis.

Harriet Pervier Hooper, Syracuse, N. Y.; College of Physicians and Surgeons, Boston, 1893; died, March 30, of bronchopneumonia and arteriosclerosis.

Joseph Sanders Strother, Blue Springs, Mo.; Louisville (Ky.) Medical College, 1877; aged 79; died, March 1, of coronary thrombosis and arteriosclerosis.

Percy G. Smith, New York; Columbian University Medical Department, Washington, D. C., 1895; died, March 7, in St. Vincent's Hospital, of pneumonia.

William George McCullough, Trenton, N. J.; Hahnemann Medical College of Philadelphia, 1878; aged 85; died, March 8, of carcinoma of the axilla.

C. Marion Glock, Arcola, Ind.; Fort Wayne College of Medicine, 1903; bank president; aged 60; died, March 8, of heart block and pulmonary edema.

Wesley Sherman Miller, Palatka, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1908; aged 54; died, March 5, of angina pectoris.

Joseph John Cody, Boston; College of Physicians and Surgeons, Boston, 1903; aged 56; died suddenly, March 14, of coronary occlusion and sclerosis.

John Burton Armstrong, Beaver, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; aged 69; died, March 22, of cerebral arteriosclerosis.

Thurlow W. Brimigton, Coplin Plantation, Maine; (licensed in Maine, under the Act of 1895); aged 67; died, March 14, of a self-inflicted bullet wound.

Elizabeth Taylor Wright ☉ Atlantic City, N. J.; Boston University School of Medicine, 1908; aged 65; died, March 17, of cerebral hemorrhage.

Alfred W. Trevitt, Wausau, Wis.; Eclectic Medical Institute, Cincinnati, 1881; for many years postmaster; aged 76; died, March 10, of senility.

George Washington Lancaster, Pisgah, Tenn.; Vanderbilt University School of Medicine, Nashville, 1892; aged 71; died, March 7, of heart disease.

Marion A. Born, Athens, Ga.; Southern Medical College, Atlanta, 1891; aged 64; died, March 23, of aneurysm of the aorta and pellagra.

Frank M. Murtaugh, Jackson, Tenn. (licensed in Tennessee in 1910); formerly city health officer; aged 56; died, March 3, of pneumonia.

William R. Hubbert, Detroit; Detroit Medical College, 1885; aged 78; died, March 1, in Miami, Fla., of carcinoma of the liver.

Daniel Christy, Shippingport, Pa.; Cleveland Medical College, 1897; aged 64; died suddenly, March 2, of chronic myocarditis.

John Edward Love, Whiting, Kan.; Rush Medical College, Chicago, 1882; aged 78; died, March 3, of cerebral hemorrhage.

William E. Paxton, Denver; Ensworth Medical College, St. Joseph, 1900; aged 77; died, March 11, of lobar pneumonia.

Vincent C. Brunson, Newville, Ind.; Toledo (Ohio) Medical College, 1884; aged 81; died, March 15, of pneumonia.

Franklin P. Sager, Ada, Ohio; Columbus Medical College, 1880; aged 83; died, March 23, of cerebral hemorrhage.

William Henry Forgy, Elkton, Ky.; Louisville Medical College, 1886; aged 86; died, March 9, of senility.

Allen Wilson, St. Louis; Missouri Medical College, St. Louis, 1879; aged 87; died, March 3, of asthma.

James Henry Brill, Indianapolis; Miami Medical College, Cincinnati, 1872; aged 93; died, February 3.

Thomas J. Wilkinson, Athens, Ala. (licensed in Alabama, year unknown); aged 66; died, February 10.

Correspondence

"RELATION OF AMERICAN MEDICAL ASSOCIATION TO CERTIFICATION OF SPECIALISTS"

To the Editor:—In THE JOURNAL, March 27, there appeared an article, "Relation of American Medical Association to Certification of Specialists," by Dr. Charles G. Heyd. Were this article merely the expression of opinion of a member or Fellow of the Association, no particular comment would be indicated; but such is not the case. The opinion of the President must in some measure represent the attitude of the Association and is, furthermore, an opinion which will influence the action of the House of Delegates and various committees of the Association and must carry some weight with the special boards. In the main the ideas and purposes expressed in this article are admirable, but on two critical points I would like to take exception to the expressions of the opinion of the author.

On page 1019, column 1, paragraph 4, is this statement: "We must be on our guard against any such thing as multiple certification or certification by one or more of the boards of certification." This is but an indication of a more extensive attitude of similar nature held by some of the special boards, which hold in addition that the candidate for certification must limit his practice to the given specialty. This attitude must go beyond all desirable objectives of these special boards. Certainly their purpose must be to certify that a given individual is a competent practitioner in a special field. It cannot and should not be their purpose to dictate to their candidates and diplomates how they should practice medicine or what particular cases they should see. The development of additional boards, say in gastro-enterology, would thus prevent a certified gastro-enterologist from taking care of a patient with coronary disease who came to him as a sufferer from indigestion. Far fetched, you say. Such special boards will never be developed. Not at all! They have been developed, they exist now in other fields. For instance, there is a special board for otolaryngology and another for ophthalmology. Certainly there can be nothing unreasonable in the certification of the practitioners properly qualified in both fields by both boards. In fact, such a course must be desirable. In many smaller cities it will be impossible for representatives of both specialties to exist. The boards, if the suggestion of Dr. Heyd is followed, must either deny to such men the certification to which they are entitled or deny to the smaller communities the special facilities which they need.

It would seem reasonable that the sole desirable function of the special boards is to exercise an advisory influence over special training and to certify to the special qualifications of individual practitioners. If a given individual is capable of acquiring the special information and training and of utilizing this training in fields of medical practice which fall in the domain of more than one board, he is entitled to the certification that he possesses such qualifications. For the boards to step beyond these limits into the dictation of what those they will and have certified should practice must be undesirable. Such a practice will freeze the medical profession in this country into compact isolated groups of specialists with the unfortunate results that obtain in other countries with the sharp differentiation between physicians and surgeons.

The second point on which I would differ sharply with Dr. Heyd is found on page 1019, column 1, paragraph 6. There he states: "It would seem wise that the question of research work should not be part of the examination of a candidate for certification." Dr. Heyd's meaning here is not quite clear, and perhaps I have misinterpreted his intent. I assume that he means that a certain amount of research work should not be one of the requirements for admission to certification and with

that I should be forced to agree; not because such work would be undesirable but because of the practical difficulty for all applicants for certification to obtain opportunity for such work at the present time. However, the boards should encourage all applicants to have such investigative experience and this by implication Dr. Heyd decries. Why? Because they will not all become a Koch, a Pasteur or a Banting. Of course not; but some of them will. However, that is not important; the majority of the capable men will find or create suitable opportunities. The point is that a measure of experience with investigative work is important for all who would aspire to specialization in a given field not because of their individual contributions, which may or may not prove valuable, but because of the training for the individual. Such experience with the proper type of investigative work will train the individual in scientific method, scientific accuracy, will bring him into contact with the scientific literature and with the work of others in his special field, will give him some basis for being critical of the results of work of others by teaching him the difficulties, the pitfalls and the necessity for adequate controls in acceptable investigative work. It has been long recognized that much clinical investigation is not on a par with comparable laboratory and animal experimentation. If proper adaptation of the results of laboratory work is to be made in the clinic, clinical investigation must be as carefully executed and controlled as the laboratory work. This will never be attained until the clinician is thoroughly grounded in scientific methods. Certainly the present period with the rapidly advancing frontiers of medicine is no time to denounce investigative training. Although such training is not at present attainable by all who would be specialists, such a requirement is a desirable end to strive for.

Certainly the special boards may prove highly desirable. But if they are to achieve their full usefulness they must not hamper the progress of the medical profession; they must not cast it into rigid molds and they must look forward from a vantage point far in front of the great mass of the profession.

PAUL C. BUCY, M.D.

Division on Neurology and Neurosurgery,
University of Chicago.

[NOTE.—This letter was referred to Dr. Heyd, who replies:]

To the Editor:—I agree with Dr. Bucy that the purpose of the special boards is to certify that a given individual is a competent practitioner in a special field. The assumption of specialistic training by any practitioner of medicine without first being willing to submit his credentials as to his special training is incompatible with his responsibility to society. If a physician seeks to be registered as a specialist he must prove his competence in a special field; but I do not think one can read into my article any curtailment of the rights of physicians to practice medicine or surgery.

I can see no reason why a gastro-enterologist, either certified or not certified, would be prevented from taking care of a patient with coronary disease, whether that patient came to him as a sufferer from indigestion or not. Here the question involved is an ethical one as to the competence of the gastro-enterologist to treat coronary thrombosis and not one of certification.

I realize that in certain communities it will be necessary for certain practitioners to practice "eye, ear, nose and throat" and I can see no particular reason why a practitioner could not be certified in ophthalmology and/or in otolaryngology if he could pass the examinations.

I think that Dr. Bucy has misinterpreted my intent with regard to research. There are certain national societies that make a contribution in research a prerequisite for admission to the society. It seemed to me unwise if a physician applied for certification in a given specialty to make him furnish satisfactory evidence of worth-while research work. It is probable that the certified men will try to do research and it is highly

desirable that they should, yet the certification as a specialist should not be predicated on his research qualifications but on his competency as a specialist.

Experience will demonstrate that certain modifications may be necessary and certainly we do not wish "to cast the medical profession into rigid molds."

CHARLES GORDON HEYD, M.D., New York.

[In further elucidation of his argument, Dr. Bucy writes as follows:]

To the Editor:—Dr. Heyd does not seem to feel that there is any real threat by the special boards toward limitation of the field of medical practice. In proof of the existence of this danger I should like to quote from the pamphlet issued by the American Board of Obstetrics and Gynecology, sixth issue, September 1936:

Page 6: "Each applicant, before he shall become eligible to receive such certificate or other evidence of recognition . . . (d) must assure the Board that he is limiting his practice to obstetrics and (or) gynecology and that he intends to continue to do so; . . ." (italics in original).

Page 7: "The Board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology."

If the special boards can limit the physician's practice in one direction they can do so in another. And if the ultimate aims of the special boards are achieved, to wit, to have only diplomates of the various certifying boards accepted on the staffs of approved hospitals, and the faculties of approved medical colleges, and listed as specialists in the American Medical Directory, then this threat becomes a serious limitation on the medical profession of this country and the profession will be cast "into rigid molds." PAUL C. BUCY, M.D., Chicago.

THE ROENTGENOLOGIST AND THE HOSPITAL

To the Editor:—In the leading editorial in THE JOURNAL, April 10, you discuss the "thought provoking" report of the American Foundation and approve its realization "that diagnosis must precede prognosis and treatment." I heartily agree with this statement. However, in general, if a diagnosis is to be properly made you will grant that it should be made by a physician, yet the statements in your third paragraph virtually imply the opposite.

I wonder whether your readers realize the full import of these four sentences, which I quote from your editorial:

More and more hospitals are being equipped with competent clinical laboratory service, roentgenologic departments, physical therapy departments and serologic units. These methods are expensive and cannot be utilized to the fullest for all the patients who might benefit by their utilization without more permanent and more adequate financial support either to the hospitals directly or to the patients who require the services. Moreover, many states now provide, through their departments of health, laboratory services which may be utilized by the general practitioner for needy patients. Extension of such services should be of great benefit to the public health and should raise the general quality of medical care when a sufficient number of trained personnel becomes available.

In other words, clinical pathology and radiology "cannot be utilized to the fullest without more permanent and more adequate financial support to the hospitals or patients, and extension of such services should be of great benefit." It reads as though you believe these services were hospital and not medical services. One might as well argue that surgical operations and obstetric deliveries are expensive and that "they cannot be utilized to the fullest without more adequate financial support to the hospitals." Hospitals need more and better operating and delivery rooms, but the provision of such would not give surgery to patients at cheaper rates; such would increase hospital costs, not decrease medical costs.

Even a cursory glance at the ethics of the American Medical Association will convince one that the financial support of the hospitals should have nothing to do with the quality or extent of medical service performed in them, not by them. If radiology and pathology, the cornerstones of medical diagnosis, are to be practiced so as to give the greatest benefits to the public, they should be practiced as are the other branches of medicine. If we socialize those branches we shall inevitably socialize the other branches of medicine. The House of Delegates of the American Medical Association has declared that radiology and pathology should be practiced by doctors, not by hospitals.

If "compulsory insurance . . . subtly and continuously lowers the quality of medical care, the quality of the medical man," does not this also apply to radiologists and pathologists? Is it not already true that because of hospital domination of radiology and pathology it is almost impossible to get the best medical students to enter these fields? The best equipment is of little value if physicians of the highest intelligence are not available to operate it. It is important to the future of radiology and pathology that we learn to distinguish between good equipment and good medical service. Good diagnostic service requires more and better equipped doctors more than the provision of well equipped x-ray departments.

Adequate medical care cannot be standardized for distribution until many of the fundamental needs of our people are satisfied. Adequate medical diagnosis cannot be standardized by state supported, politically operated laboratories, any more than the practice of medicine can be standardized by state appointed and politically controlled general practitioners. The American Medical Association promotes the welfare of the public health by protecting those fundamentals of medical practice which have proved themselves through the years. One of those fundamentals is the personal responsibility of the physician to his patient. This responsibility would be destroyed by the methods you comment on; the radiologist and pathologist would be responsible to his political superior, not to the patient.

L. H. GARLAND, M.D., San Francisco.

"THE ADDIS COUNT IN CHILDREN FOLLOWING CLINICAL RECOVERY FROM POSTINFECTIONOUS NEPHRITIS"

To the Editor:—In the article entitled "The Addis Count in Children Following Clinical Recovery from Postinfectious Nephritis," by H. H. Boyle, C. A. Aldrich, Albert Frank and Sydney Borowsky, Chicago (THE JOURNAL, May 1, p. 1496), the statement is made that "a difference of one cell per square in the chamber makes a difference of 10,000 in the total specimen."

Feeling that this statement is somewhat misleading, I should like to clarify the method of calculation.

The calculation of the total urinary sediment of the twelve-hour specimen is the object of the test. In this series (Boyle and others) from 120 to 150 cc. of urine was about the average twelve-hour output. In determining the amount of urinary sediment present in this total, a 10 cc. sample of the total is taken, centrifugated according to the accepted technic, and the supernate withdrawn by pipet, usually 1 cc. of urine being left behind, so that the entire sediment of the 10 cc. sample is contained in the 1 cc. of urine. The cells in the sediment are counted in unit volumes of 0.1 cu. mm., so that one cell counted represents 10,000 cells in the 1 cc. of concentrated sediment, which represents 10 cc. of the total specimen. Under the conditions mentioned, with a total specimen of 150 cc., one cell counted on the hemocytometer would represent 150,000 cells in the total sediment for twelve hours. Casts are counted in unit volumes of 0.9 cu. mm.

ALBERT FRANK, M.D., Chicago.

Children's Memorial Hospital.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF CORONARY THROMBOSIS

To the Editor.—Two and one-half years ago a man, aged 35, with a negative previous history and apparently in perfectly good health, was suddenly seized with severe substernal pain, which radiated down his right arm. When examined, about an hour after the onset of the attack, he was apparently in severe pain, in semishock and with marked pallor, cold, clammy skin, large beads of perspiration on his forehead, and a slow regular pulse rate of 52. A diagnosis of acute coronary thrombosis was made and the patient was hospitalized. An electrocardiogram taken the day of his attack was normal except for some left ventricular preponderance. The subsequent clinical course fully confirmed the original diagnosis. There was a subsequent elevation of temperature to 100.4 F. for three days, an increased sedimentation rate and a fall in blood pressure from 130/90 to 105/80. There were also definite electrocardiographic changes; two days after the onset of his illness there was noted a definite inversion and curving of the T wave in lead 3 (this had previously been upright and no digitalis had been administered). One week later the electrocardiogram also showed T₂ to be slightly inverted. After eight weeks of hospitalization, the patient was allowed to resume gradually some activity. However, for about a year thereafter he complained of almost daily substernal pressure after slight activity; this would quickly be relieved by lying down, and after ten or fifteen minutes in the prone position he would again feel all right. During the past year, these attacks of substernal pressure have become less pronounced. However, he still complains of occasional attacks of definite substernal oppression, especially after excitement of any sort or on walking more than a few blocks. Walking up an incline, even if only of slight degree, seems especially to bring on this substernal pressure. Moreover, he complains of being very easily fatigued, after even the slightest undue activity, whereas before his present illness he seemed to have an unlimited source of energy and was a tireless worker. His physical examination at the present time is essentially negative. His heart sounds are normal and the heart is not enlarged. The blood pressure varies between 145/100 and 125/90. The Wassermann reaction is negative. His pulse is regular, the rate is 68, and within three minutes after moderate exercise it returns to normal, although there is a slight dyspnea. The vital capacity test shows about 10 per cent below the normal capacity. The electrocardiogram shows nothing unusual, except that T₃ has remained inverted. Lead 2 now appears normal. The question is just how much reliance should be placed on the symptoms at the present time, in the absence of definite physical signs of coronary disease? He is at present receiving a fair income from an insurance company as being totally disabled from doing any gainful occupation. He feels that he wants to get back to work and on the other hand is afraid that he will not be physically able to exert the energy outlay involved in such a course. Would I be justified in concluding that in view of his previous history and present complaints he is still unable to resume his occupation, which is a highly specialized work and entails considerable mental strain and also moderate physical activity? Would it be hazardous to consider the present symptoms as a neurotic basis and thus recommend his return to work? Granted that there is no subsequent acute attack of coronary thrombosis, how long would it be reasonable to suppose that such symptoms as now presented are on a real organic basis—the result of narrowing of the coronary vessels due either to sclerosis or to spasm? What, in general, is the prognosis of such a case of coronary involvement in a relatively young man, who has no signs of any other pathologic condition? Also what therapy would you recommend?

M.D., California.

ANSWER.—In a case of this type there are so many factors that must be carefully assessed that it is difficult to set out any but the most flexible rules for guidance. Three points must be carefully considered: first the amount of damage and the amount of recovery from the attack, second the probability of subsequent attacks, and third the extent of the neurotic element in this case.

After two and one-half years, further improvement will be slight and slow in appearing. It is even probable that there will be no further improvement. It is evident, however, that there has been enough cardiac efficiency in this patient to permit him considerable activity. The symptoms described cannot be disregarded even in the absence of physical signs, because only too often the symptoms are the sole evidence of coronary insufficiency. There is no definite time interval after which the symptoms cease to be on an organic basis.

With these points in mind it should be possible to hazard a guess as to the patient's physical ability to do the work he wishes to engage in. In general, it may be safe for him to do any work that does not cause an appreciable amount of distress. This brings us to a consideration of the second point.

It cannot be granted that a subsequent acute attack may not occur. The conditions that permitted the first attack to occur still exist and a subsequent attack is certainly a probability. As a rule there is no certainty that abstinence from work will

prevent a recurrent attack but there are certain types of work, notably those types which subject the patient to emotional strains and which are, mentally, of a highly competitive nature, that are very likely to bring on subsequent attacks. Because of this fact, physical ability to work is not the only guide to be followed.

With regard to the third point, it is most difficult to determine the extent of the neurotic element in any case of this sort. The physician certainly helps to make the patient "heart conscious" by the rigor of his immediate treatment of the attack. This is quite necessary, but some patients are unable to overcome this fear as the physical condition improves. At present the only guide that can be used to separate the "neurotic" from the "organic" patient (and this is a most unsatisfactory guide) is the deliberate and studied opinion of the attending physician. It is most disheartening to assure a patient that he may safely embark on a task and have him suddenly die from a "heart attack" on the following day.

In general, the prognosis following acute coronary thrombosis is not good. Age is not an important factor in the prognosis and the individual case must be considered. Those who make a good recovery and are able to adjust themselves, both mentally and physically, to the needs of their condition frequently do very well and live comfortably for years. These cases are the exception rather than the rule.

The therapy here should be that of the usual case of coronary occlusion. Intelligent management is the most valuable therapeutic agent. This should include avoidance of physical strain, overeating, and overstimulation of all kinds. The use of substances of the purine-base group, or the use of tissue extracts or the adenosines may be helpful. Surgery is as yet too uncertain to be recommended.

SURGERY OF HAND AFTER DIVISION OF ULNAR NERVE

To the Editor.—A patient of mine, a youth of 21, fell and cut his left hand on a broken milk bottle six months ago. The hand was cut in two sites, one on the proximal part of the hypothenar eminence, the other a very deep one (he extracted a large piece of glass from it) in the middle portion of the palm one inch distal to the wrist. He received treatment at a hospital, where the bleeding was stopped but the wounds were not inspected to see what structures were severed. Immediately following the injury there was anesthesia of the fourth and fifth fingers with flexion and inability to extend them fully. These symptoms have since improved about 50 per cent under massage, baking and exercise. Two months ago, however, the patient noticed an atrophy of the hand. This atrophy has become marked, being especially noticeable on the dorsum between the thumb and the index finger. The powers of adduction and abduction of the fingers and thumb (when the flexor and extensor tendons are not used) is completely gone. I thought that this was due to the severance of the deep (muscular) branch of the ulnar nerve, paralyzing the interossei muscles, adductor pollicis and so on. What should be the treatment at present? Is surgical intervention to attempt to reunite the severed nerves indicated now? What are the chances for success of such an operative procedure?

M.D., Pennsylvania.

ANSWER.—The symptoms described are those of division of the ulnar nerve in the palm. This is evidenced by the loss of sensation over the fourth and fifth fingers, atrophy of the interossei, and the motor disturbances symptomatic of paralysis of the interossei and the medial two lumbrical muscles. The presence of sensory loss over the ring and little fingers means, of course, that sensory division of the ulnar nerve has been divided, as well as the deep motor division.

What should be done at the present moment will depend somewhat on the healing of the original wound following its suture. If healing of the injury occurred by primary intention, without infection or discharge, operative repair of the divided nerves and all tendons (of which there are probably one or two divided) should be attempted now. If there was a serious postoperative infection with prolonged discharge and sepsis, it would be wise to wait for a period of from eight months to a year after the complete subsidence of discharge before attempting repair.

In performing the repair the operation should be done under a general anesthetic and in a bloodless field, secured by means of a blood pressure apparatus pumped up to 240 mm. of mercury. Great care will be necessary to identify all divided structures. It would be necessary to uncover the normal nerve a few centimeters above and below the point of injury and trace the divisions down to the site at which they were divided. It would be almost impossible to find the ends by dissecting directly in the scar of the wound. After these divisions have been isolated and after the tendons have been carefully inspected to determine whether or not any have been damaged, the blood pressure may be released and bleeding controlled. Following this, the pressure should be reapplied and the nerve and tendon repair performed. The nerves must be sutured with the finest

silk on atraumatic needles, accurate proximation of the nerve ends being obtained by careful suture of the perineurium without perforating the nerves with the needles.

Following operation, splints should be applied to keep the sutured nerves and tendons in a relaxed position, also to keep the paralyzed interossei relaxed. This means flexion of the wrist and of the metacarpophalangeal joints. Splinting of the wrist should be kept up for a period of three weeks and of the metacarpophalangeal joints for several weeks or months longer, until some evidence of regeneration occurs in the interossei.

If well carried out, this procedure should result in sensory return over the area of distribution of the ulnar nerve within three or four months. The motor return and disappearance of atrophy will take a longer time, and the chances of return of motor function are not so great as those of sensory return. There is no question that repair should be attempted.

DEATH FROM EXHAUSTION OF BODY RESERVE

To the Editor:—I am asking for an opinion on the question as to whether or not it is generally accepted in scientific circles that an organism can expire for lack of further body reserve. At a staff meeting of the members of a small hospital, the medical division reported two deaths. One was a case of influenza pneumonia in a patient with chronic asthma. The medical division, because of the speed with which the patient died, in spite of energetic treatment, concluded that the adrenal glands had become exhausted in an effort to keep the patient in physiologic balance during the paroxysms of asthma, which extended over a long period of time. This explained the inability of the patient to respond to treatment. The surgeons denied the possibility of this phenomenon. The second patient had chronic diabetes, developed gangrene of the right foot and leg, and died three days after the leg was amputated. When the patient was admitted to the hospital, in the presence of gangrene, the urine was negative for sugar, it had a specific gravity of 1.008, the twenty-four hour output was 13 ounces (385 cc.), the blood sugar was 342, and there were no signs of acidosis or alkalosis. On a milk and orange juice diet with insulin, the urinary output increased by 8½ ounces (250 cc.) in twenty-four hours but the specific gravity remained at 1.008. After forty-eight hours the leg was amputated under spinal anesthesia. The blood pressure dropped from 170/130 to 90/60 during the operation. Under small doses of epinephrine it went back to 130/90. Twenty-four hours later it was back to 170/120, with no change in the urinary picture except incontinence. The patient died seventy-two hours after operation. At no time prior to her death did she go into coma, nor was there any mental cloudiness. Her only complaint was a little pain in the stump. Four hours before her death she was seen by a member of the medical staff and was found to be in fair condition. Shortly after his visit, nourishment was refused with the statement that she was not hungry. She eventually grew drowsy and died almost suddenly. The medical division contend that this patient died of exhaustion, in the sense that all the kidney reserve had been used up and she could no longer avail herself of the medical treatment that was given. The surgeons hold such a phenomena to be impossible. Because of lack of laboratory facilities and a regular pathologist and technician, blood chemistry could not be done with the frequency which this case demanded.

LAWRENCE GREELEY BROWN, M.D., Elizabeth, N. J.

ANSWER:—Whether the patient with asthma and pneumonia died from exhaustion of the adrenal cortex cannot be determined, but the possibility that such exhaustion played a part in the outcome certainly cannot be denied. In the second case the question arises as to just what is meant by "kidney reserve." The symptoms as described do not suggest suppression of the urinary secretion. Speaking generally and from a theoretical point of view, it seems quite obvious that death may result from any condition which interferes with the adequate production and availability of any element essential to life. The function of the adrenal cortex, for instance, is vitally necessary. The exact mechanism at work in a given case may be difficult to analyze and beyond definite explanation.

USE OF BISMUTH COMPOUNDS IN SYPHILIS

To the Editor:—In the treatment of primary syphilis I frequently find it impossible to give a continuous biweekly course of bismuth therapy. Will bismuth compounds given at weekly intervals be as effective as those given two or three times weekly? Is the oil suspension of an insoluble salt better than the aqueous solution? What are considered to be the most effective in answer to these two questions and who are the manufacturers? Finally, what is your opinion of bismuth sodium tartrate 3 per cent Searle? Please omit name.

M.D., Alabama.

ANSWER:—Yes, there are certain bismuth preparations given at weekly intervals that will be as effective as a preparation used two or three times a week. For this purpose, naturally, it will be necessary to use an oil suspension of an insoluble salt rather than an aqueous solution. Thereby there is a slower absorption from the deposits in the muscles of the buttocks. As the result of this, of course, the level of bismuth in the blood stream may be a little slower in reaching the therapeutic height that is necessary, but once it is attained it will continue longer.

Where one desires to get a rapid bismuth effect, it probably is preferable to use one of the so-called aqueous solutions, for example, iodobismutol. This preparation seems to be intermediary between the true aqueous solution, an example of which is bismuth sodium tartrate, and the so-called liposoluble solutions, examples of which are bismo-cymol and biliposol.

Bismuth sodium tartrate is a pure aqueous preparation. To attain the proper therapeutic level in the blood stream, this preparation should be administered three times a week.

If one is going to use a preparation that will do the work through an injection but once a week, the liposoluble preparations may be chosen, for example bismo-cymol in a dosage of 2 cc. once a week or biliposol likewise in a dosage of 2 cc. once a week. Both preparations, however, are quite expensive, particularly the latter. An inexpensive bismuth oil suspension is the bismuth subsalicylate, which is made by several of the manufacturers in this country. The level of bismuth in the blood stream is somewhat slow in attaining the therapeutic height that is necessary for treating syphilis. Thus it probably will be well with the last two injections of a course of arsenicals to give the first injection of the bismuth salicylate. In this way when the course of bismuth injections between the courses of arsenicals is really instituted there would already be a therapeutic level of bismuth in the blood stream.

DERMATITIS FROM FISH

To the Editor:—I have been treating cases of "fish poisoning," a skin disease which follows repeated contact of the forearms and hands with fish. The lesions look exactly like a rather mild case of poison ivy dermatitis, there rarely being much weeping. Is there any special treatment indicated in these cases? Astringent lotions seem to give the best results, but I am anxious to find a specific—possibly a desensitizing-agent.

M.D., California.

ANSWER:—Possibly the dermatitis referred to is erysipeloid, a mild infection occurring frequently in those who handle fish. It was described in THE JOURNAL, July 25, 1936, page 302. Fishermen suffer frequently from stings from the poisoned spines found on many fish or from the poison secreted in the glands of many aquatic animals. Not only do these cause stinging directly but their flesh, dried and powdered as it may be in drying nets, sometimes causes sneezing and dermatitis. Another source of dermatitis in fishermen is the rubbing of oilskins, particularly on the wrists in cold weather.

See White, R. P.: The Dermatogoses, ed. 4, London, H. K. Lewis & Co., 1934, pages 377 and 405.

CHLORINATION OF WATER SUPPLY

To the Editor:—During the drought of 1934 this city began using chlorine in its water supply. The first three days it was so strong with chlorine that goldfish and flowers were killed, and many cases of gastroenteritis were caused. The board of health said that such amounts of chlorine were disagreeable but harmless. Because of low water supplies, the chlorine in the city water is again so heavy that when a pail is drawn it can be plainly detected several feet distant. A quantity drawn and allowed to stand eight hours is still so strong that it smells like a chloramine solution. Is such water fit for drinking and household purposes? To be fit for drinking and yet kill typhoid germs, need water contain more chlorine than is barely detectable by smell?

J. A. GUTHRIE, M.D., Neosho, Mo.

ANSWER:—The description of the existing conditions indicates that chlorine was applied to the water supply only as a temporary precaution. For that reason the method of application was no doubt crude and the control exercised over the dosing apparatus was probably manual in nature. The germicidal dose of chlorine varies from approximately 0.05 to 0.5 parts per million of water by weight, so that in a city with an estimated half million gallon daily water consumption it would require an expensive apparatus to control accurately the application of such small amounts of chlorine to the water supply. The probability is that the water supply was overdosed with chlorine from the fact that flowers and goldfish were killed in this water. Generally speaking, it is not necessary to have enough chlorine in water so that it is detectable by either odor or taste in order to kill typhoid or other water-borne disease organisms. There is an exception to this when water contains phenolic or other organic wastes that combine with chlorine to form the disagreeable "chlorophenolic" tastes. The amount of chlorine necessary to kill organisms changes with each different water supply, depending on the temperature of the water and quantity of adsorptive organic material present. The amount of chlorine may be made far in excess of the usual amount quoted without danger of toxic effect when ingested. However, such excessive chlorination produces a poor water supply from the standpoint of tastes and odors. Careful laboratory control is necessary if a safe, palatable water is to be produced at all times.

MILD INFECTION SIMULATING SYPHILIS
OR SCLEROSIS

To the Editor:—A white woman, aged 38, Lithuanian, a housewife, was referred to the hospital with a chief complaint of intermittent pounding parietal headaches and vomiting of three days' duration. There was also some associated loss of weight. She had felt quite well until the onset of her chief complaint. She has always enjoyed good health, without miscarriages or stillbirths. She has been married eighteen years and has four children living and well. Her husband was treated for syphilis four years ago. He had a venereal disease which might have been primary syphilis eight years before marriage. He now has a four plus Wassermann reaction. All the children have negative Wassermann reactions and have no stigmas of congenital syphilis. Under the classification of symptoms referable to the various systems there is nothing significant in a positive way. There is no soreness of the tongue. There are some drawing pains in the arms suggestive of paresthesia. No paresthesia is present in the lower extremities. The patient has no difficulty in walking. Urinary disturbances are absent. The patient is fairly well nourished; she appears somewhat anemic. Examination of the head and neck and of the cardiorespiratory and gastro-intestinal systems showed nothing significant. The blood pressure is 130 systolic, 90 diastolic in both arms. Neurologic examination showed the following significant manifestations: Babinski reflex negative. Ankle clonus as well as patellar clonus positive on both sides. Knee jerks exaggerated. Biceps and triceps also hyperactive. The pupils and eyegrounds were normal. There was some slight diminution in bone conduction in the lower extremities. No sensory disturbance could be elicited. Laboratory examination showed white blood cells 7,200, red cells varying from 3,000,000 to 4,500,000, color index 1, hemoglobin varying from 60 to 70 per cent. No deviation from the normal occurred in the appearance of the red blood cells. The Kahn and Wassermann reactions on the blood were negative on three occasions reported by two different laboratories. A provocative Wassermann test with reports from our own laboratory showed a persistently negative result (the technic of the provocative test was to give 0.3 Gm. of neoarsphenamine intravenously and take a blood Wassermann test daily over seven days). The spinal fluid Wassermann test done on two different specimens of fluid showed 80 lymphocytes the first time and 30 the second time. Globulin and the colloidal gold curve were normal. A titrated spinal fluid Wassermann test done on both specimens was negative in all dilutions. The spinal fluid was examined by two different laboratories with the same report. Fractional gastric analysis showed absence of hydrochloric acid with an ordinary test meal and also absence of hydrochloric acid after the analysis was repeated with histamine stimulation. The progress of the case was as follows: After three days in the hospital, the vomiting stopped. The headaches persisted with only slight improvement during the entire two months stay in the hospital. There was no improvement after spinal puncture. She was discharged with very little difference in her condition except the cessation of vomiting. Now the following questions arise: Am I justified in excluding syphilis as the cause of this patient's illness in spite of the fact that the husband showed the presence of syphilis? With these observations am I justified in diagnosing this case a combined sclerosis associated with achylia? I would appreciate your impression in this case. Kindly omit name.

M.D., Pennsylvania.

ANSWER.—There seems no evidence in this case that the patient has ever had syphilis. Her acute illness may well have been an acute mild infection. An influenza producing a mild meningismus would be capable of producing paresthesia in the arms, exaggeration of the deep reflexes, ankle clonus and a descending pleocytosis in the spinal fluid. Further, such an acute infection is capable, temporarily, of abolishing free hydrochloric acid from the gastric juice. From this point of view the patient might be regarded as in no future danger. However, another gastric analysis should be done when the general health is good a month or two from now. If achylia is found, liver therapy should be given in view of the relatively high color index. If headaches continue to be present, an encephalogram should be made.

MAGNESIUM IN WATER

To the Editor:—For the past several weeks the water supply of this city has contained large amounts of magnesium in a free state. What physiologic effect will this magnesium have if large amounts of the water are consumed over a considerable period of time? What effect will it have with regard to kidney stones? I have been unable to find any information with regard to this matter in any book on physiologic chemistry. Numerous housewives have complained of the staining of clothes after ironing.

M.D., West Virginia.

ANSWER.—Good water work practice tolerates as much as 100 parts of magnesium per million parts of water. Quantities in excess of this are not regarded with apprehension because of any prospective injurious physiologic action but solely on account of the troublesome hardness of water so produced. This query notes that the magnesium is present in the water in a "free state." If this implies that magnesium is present as elemental magnesium, such is not likely to be the case, nor is magnesium oxide likely to be present. Magnesium is found in the water supply of many cities in the form of the sulfate, chloride, carbonate or bicarbonate. The industrial uses of magnesium as such, or in the form of its salts, has attracted no attention to any toxic properties, with the exception that

metal fume fever may be produced by magnesium oxide arising in connection with the manipulation of magnesium in the molten state. This metal fume fever is not a specific disease, since an identical form of the disease may be produced by zinc, copper and other metals. Magnesium when taken by mouth is to be rated as one of the least toxic of all minerals.

At present the production of renal calculi is attributed to abnormal states growing out of infection of renal tissues, such as pyelitis. Given this state, renal calculi may appear in the absence of any known extrinsic factor, such as high calcium or magnesium content in the water. The presence of such chemicals in water supplies is unlikely to produce a high frequency of renal calculi. It has been found from animal experiments that the entire elimination of magnesium from the diet leads to the death of the experimental animals within a few weeks. No proof is available that magnesium in drinking water supply may be regarded as a serious hazard to health. The hardness of such water is objected to by housewives and by industry because of the economic problems produced, none of which stand in direct relationship to health. Extensive information pertinent to this inquiry may be found in:

Newns, G. H., and Wilson, Reginald: *Mandelic Acid in Treatment of Pyelitis in Childhood*, *Lancet* 2: 1087 (Nov. 7) 1936.
Hinman, Frank: *Principles and Practice of Urology*, Philadelphia, W. C. Saunders Company, 1935, p. 631.

RINGWORM OF THE FEET

To the Editor:—Please outline the treatment or give me new ideas regarding the treatment of epidermophytosis (ringworm of the feet) other than the methods I have employed, which are gasoline soaking, sodium thiosulfate baths, Castellani's paint followed by 10 per cent ammoniated mercury ointment, Whitfield's ointment, various formulas containing iodine crystals, potassium iodide, salicylic acid, alcohol, or salicylic acid, benzoic acid phenol mixtures. My wife has had the condition for about two years and we have tried everything we know, including discarding all wool stockings, slippers, shoes, and the use of various proprietary ointments. The condition is localized usually in one area and consists mainly of a bullous formation. When the top layer is removed and the base is treated religiously for a few weeks, it greatly improves, but in a month or so the entire bulla with its attendant pain recurs. I am considering a resection of the entire bulla with some surrounding normal tissue. Do you think this advisable?

M.D., New Jersey.

ANSWER.—The presence of a recurrent bullous lesion in a fixed location, as described, suggests the possibility of a traumatic or pressure factor in its production. A maladjustment in the mechanics of the foot might be one of the underlying factors in the production of the lesion. The epidermophytosis in this instance could well occur as a secondary, superimposed infection. Orthopedic care should be instituted before undertaking the surgery described.

Further local treatment may consist of applications of 10 per cent silver nitrate to the base of the bulla and daily painting of the area with a 3 per cent aqueous solution of gentian violet.

A description of the treatment of ringworm of the feet, by Wise and Wolf, appeared in *THE JOURNAL*, Oct. 3, 1936, page 1127.

SOFTENING OF NAILS

To the Editor:—A man, aged 39, in perfect health, with physical examination, including the usual laboratory tests, essentially negative, shows nails on the fingers and toes without their regular hornified appearance and soft and not distinct from the skin. He is losing the hair on his head, eyelashes, and eyebrows, and some of his beard is coming out. He is also becoming prematurely gray. This process dates back five years, slowly but progressively getting worse. Slides and cultures taken from these areas of hair are negative for fungi. This must be a definite disease, but I do not know the diagnosis or whether there is any treatment for it. Please give me some information regarding this condition.

M.D., Texas.

ANSWER.—An endocrine disturbance might be responsible, though none is known that presents exactly this syndrome. In the hope of finding some basis for such a diagnosis, an expert in the diseases of the endocrine glands should examine the man.

Another possibility, and by far the more probable, is that the change is due to a congenital defect. That it appeared at the age of 34 is no guaranty against its being congenital, for other defects of congenital origin appear during adult life. Cases of congenital defects of the hair and nails have been reported since 1872, and in some of these reports whole families defective in these appendages have been described. Other cases have been without familial occurrence. Some have been associated with other defects, such as webbed fingers or epidermolysis bullosa. There is no treatment known that would be likely to restore the hair or nails.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 13. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science*. Tucson, June 15. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical*. Phoenix, July 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: Little Rock, June 17-18. Sec., State Medical Board of the Arkansas Medical Society, Dr. A. S. Buchanan, Prescott.

CALIFORNIA: San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science*. New Haven, June 12. *Prerequisite to license examination*. Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homeopathic)*. Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular)*. Hartford, July 13-14. *Endorsement*. Hartford, July 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29 (probable dates). *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June 9-10. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Medical*. Iowa City, June 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines. *Basic Science*. Des Moines, July 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, June 3-5. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 6-7. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular)*. Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic)*. Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: Minneapolis, June 1-2. Sec., Dr. J. J. Hall, University of Minnesota, Minneapolis. June 15-17. Sec., Dr. Julian F. DuBois,

350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 3-5. State Health Commissioner, Dr. H. F. Parker, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 5-6. Sec., Dr. S. A. Cooney, 205 Power Block, Helena.

NEBRASKA: Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. Le Grand Ward, Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Columbus, June 1-4. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical*. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science*. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, July 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 17-18. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 21-23. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 21-23. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 23½ Franklin Road, Roanoke.

WASHINGTON: *Basic Science*. Seattle, July 8-9. *Medical*. Seattle, July 12-14. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Fairmont, July 12. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science*. Milwaukee, June 5. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical*. Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in THE JOURNAL, May 22, page 1825.

California February Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Los Angeles, Feb. 9-11, 1937. The examination covered 10 subjects and included 90 questions. An average of 75 per cent was required to pass. Thirty-six candidates were examined, 33 of whom passed and 3 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine.....	(1936)	87.3	75.9
College of Medical Evangelists.....	(1936)	88.6	79.4
University of California Medical School.....	(1936)	85.7	76.2
University of Colorado School of Medicine.....	(1936)	80.7*	84.9*
George Washington University School of Medicine.....	(1935)	80.7	81.4
Georgetown University School of Medicine.....	(1936)	85.9	88.6
Northwestern University Medical School.....	(1936)	85.9	88.6
Rush Medical College.....	(1936)	85.9	88.6
Indiana University School of Medicine.....	(1936)	85.9	88.6
University of Kansas School of Medicine.....	(1935)	85.9	88.6
University of Michigan Medical School.....	(1936)	85.9	88.6
Wayne University College of ..	85.9	79.6	80.3, 81.2, 82.3
St. Louis University School of ..	85.9	80.3, 81.2, 82.3	85.9
Creighton University School of ..	85.9	80.3, 81.2, 82.3	85.9
University of Nebraska College of Medicine.....	(1935)	85.9	88.6
Cornell University Medical College.....	(1936)	85.9	88.6
University of Rochester School of Medicine.....	(1936)	85.9	88.6
Duke University School of Medicine.....	(1935)	85.9	88.6
University of Oklahoma School of Medicine.....	(1936)	85.9	88.6
University of Oregon Medical School.....	(1936)	85.9	88.6
Jefferson Medical College of Philadelphia.....	(1936)	80.4	86.4
University of Wisconsin Medical School.....	(1936)	80.4	86.4
Medizinische Fakultät der Universität Wien.....	(1931)	80.3†	79.2†
Rijks Universiteit te Leiden Faculteit der Geneeskunde.....	(1935)	80.3†	79.2†
School	FAILED	Year Grad.	Per Cent
College of Medical Evangelists*	(1936)	74.4	71.7
American Medical Missionary		71.7	73.9
Indiana University School of ..		71.7	73.9

Twenty-eight physicians were licensed by reciprocity and 4 physicians were licensed by endorsement from February 19 through April 5. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine.....	(1915)	Colorado	
Bennett Medical College, Chicago.....	(1911)	Illinois	
Northwestern University Medical School.....	(1935, 3)	Illinois	
Indiana University School of ..		Minnesota	
State University of Iowa College ..		Iowa	
University of Kansas School of ..		Kansas	
Johns Hopkins University Schol ..		Ohio	
Detroit College of Medicine and Surgery.....	(1914)	Michigan	
University of Minnesota Medical School.....	(1910)	Minnesota	
Washington University Schol ..		Missouri	
Creighton University School ..		Nebraska	
John A. Creighton Medical ..		Iowa	
University of Nebraska College ..		Nebraska	
Cornell University Medical College.....	(1924)	New York	
Long Island College Hospital.....	(1925)	New York	
New York Homeopathic Medical College and Flower Hospital.....	(1924)	New York	
Ohio Medical University.....	(1900)	Ohio	
Jefferson Medical College of Philadelphia.....	(1900)	Illinois	
Temple University School of Medicine.....	(1928)	Penn.	
University of Pennsylvania Department of Medicine.....	(1908)	Penn.	
University of Pennsylvania School of Medicine.....	(1929)	Mass.	
Regia Università di Napoli Facoltà di Medicina e Chirurgia.....	(1932)	Maine	

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.
† Verification of graduation in process.

Book Notices

A Key to the Rattlesnakes with Summary of Characteristics. By Laurence M. Klauber, Curator of Reptiles and Amphibians, San Diego Society of Natural History. Transactions of the San Diego Society of Natural History. Volume VIII, No. 20. Printed for the Society. Paper. Price, \$1. Pp. 185-276, with illustrations. San Diego, California, 1936.

Mr. Klauber, qualified by an unprecedented experience as curator of reptiles and amphibians of the San Diego Society, handles his subject as a thorough scientist in describing species and subspecies of rattlesnakes, with a summary of their individual characters, a key for specific determinations, and life history data, of great advantage to the student. He feels a sneaking sympathy with the rattlesnake genus, which is not aroused by the moccasin.

With the appearance of this work there comes naturally to mind the fine works of the herpetologist Dr. J. E. Holbrook of Charleston, S. C., in the early forties, and especially that of Dr. S. Weir Mitchell, whose world-wide reputation rests in part on his "Researches upon the Venom of the Rattlesnake" (Smithsonian Contributions to Knowledge, 1860). Nor should one forget the great taxonomy of E. D. Cope of Philadelphia (Smithsonian Institution, 1900). Among recent authorities are the late John Van Denburgh of San Francisco, Alexander G. Ruthven and Frank N. Blanchard of the University of Michigan, A. I. Ortenburger of the University of Oklahoma, and our present-day therapist in the snake venom field, Dr. Dudley Jackson of San Antonio.

Touching the various kinds of rattlesnakes, Klauber, including all their habitats, finds a total of forty species and subspecies. Stejneger and Barbour in their authoritative "Check List of North American Amphibians and Reptiles," 1923, list twenty-one, six of which are from Lower California; since then five subspecies have been described and two others revived. Klauber deletes from the confusing literature many synonyms, among them *kellyi*, named by Do Amaral (1929), chief of the antivenin snake farm at São Paulo, Brazil. The South American *Crotalus terrificus* appears as a subspecies of *Crotalus durissus*; it is the most dangerous of all the crotalids as well as the most virulent, because of the large amount of neurotoxin in its venom, in which it resembles the cobra group. In going over Klauber's data, one realizes how difficult the readjustments have been. The thirty-eight rattlesnake photographs which he presents are valuable aids in identification and are unsurpassable, as are the fine line drawings and the maps of territorial distribution. There is also a complete glossary of value to the nonspecialist.

Of great interest to doctors is the question of the poisonous snake bite and its treatment. In the first place, North American rattlers do not pursue their victims but are generally anxious to make their escape, which is relatively slow because of their heavy build as compared with the harmless blacksnakes and coachwhips. It sometimes happens that in going through the woods one steps across a log close to a rattlesnake which does not stir. Sometimes a badly scared complainant has not been bitten by a snake but merely scratched by thorns. Klauber emphasizes the fact not generally known that the poison of some species is far more toxic than that of others, stating that "There are considerable differences both in toxicity and in physiological effects in the venoms of several rattlesnake species, some being sixty times as powerful drop for drop as others. Some are primarily hematoxic; others neurotoxic." The yield of venom per snake varies greatly according to the species, even in snakes of similar size, and is voluntarily controlled. The following are a few adult averages, the figures representing the yield of one milking in milligrams of dried venom: *C. cinereus*, 270; *C. v. oreganus*, 140; *C. m. mitchelli*, 33; *C. cerastes*, 32; *C. tigris*, 11. A general but not universal rule is that rattlers which give low quantitative yields proportionate to their size have the most powerful venoms. The maximum recovery from a single snake was from *C. cinereus*, the large Texas snake that has been called *atrox*, which yielded 1,145 mg. of dried purified venom, the largest amount secured from any of the 4,000 rattlers milked by Klauber.

When a child is bitten, it receives a dose of venom larger than an adult, proportionate to the difference in size and body

weight; this also explains why small animals die so quickly. Death takes place from the poison absorbed and carried up into the body. Agreeing with others, Klauber reckons that only about one in ten persons would die if they had no treatment; but he states that the death rate is higher with some especially dangerous species, among which the big Florida diamondback must certainly be included.

Fourteen variable factors in snake bite are listed.

A man, fortunately, is usually struck below the knee or on the forearm or hand, making it much more convenient for treatment. The wound is immediately followed by severe local pain with marked swelling due to hemolysis; the fang punctures are readily distinguished. To allay excitement and rash acts, the author adds "Remember that few cases of rattlesnake bite are fatal."

The first injunction is to avoid foolish or harmful remedies. Alcohol is harmful and never helpful; patients sometimes die from an excessive dosage of whisky. Potassium permanganate, carried by so many hunters into the field in little bottles along with a hypodermic syringe, never helps in the least, while it produces frightful sloughs, of which alone patients have died long after the bite. Cauterization is useless, and the madstone is foolish. There is just one rational, simple remedy; namely, to keep the poison localized and to get it out of the tissues where it is localized, as speedily as possible, by suction. This is the oldest remedy, imperfectly applied by mouth by Indians and peons with indifferent success but brought to great perfection by Dudley Jackson of San Antonio after extensive experimentation. For example, as but one of a long series of experiments, some of them conducted with Colonel Crimmins of the United States Army, a dog was injected in a hind leg with five times the lethal dose of rattlesnake venom, which is a milligram per pound. With incisions and suction, Dr. Jackson withdrew what was recoverable and with that injected four other dogs. Two of these died and two others with terrible slough were killed; the first dog, receiving the excessive amount, recovered. Dr. Jackson also found that a number of victims both human and animal had gas gangrene, calling for amputation or the removal of large areas of necrotic tissue. The organism *Bacillus welchii* was located in the fangs and venom of the rattlesnake!

He who goes afield in a rattlesnake country should wear stout leather leggings and carry a small pocket kit containing rubber tubing to encircle the limb above the swelling and cut off circulation, a small bottle of an antiseptic (iodine), a sterile razor blade in a little bottle, and a cup and suction bulb. Such kits are supplied by the Flack Company of San Antonio and by others. The ligature must not be too tightly applied (enough to control the lymphatic circulation) and should be released every fifteen or twenty minutes for one or two minutes. The whole area is painted with the antiseptic and the knife blade used to make crucial incisions, first through the skin and connective tissue at each fang puncture, followed by similar incisions about three fourths of an inch apart over the entire swollen area. The glass cup with the stout rubber suction bulb is set to work over each incision and the bloody fluid drawn off. This evacuation process must be persisted in for half an hour and repeated at intervals while there is any swelling. The ligature is moved up the limb if any swelling appears above it. It helps sometimes to inject a 2 per cent salt solution into the tissues to dilute and facilitate suction. The patient is of course placed under a doctor's care and taken to a hospital as soon as possible. Since a transfusion is occasionally called for, the blood should be typed promptly to avoid delay.

The field of usefulness for antivenin is likely to vary with the species involved. The two methods are not mutually exclusive. Antivenin has not been found effective in the Florida diamondback, *C. adamanteus*, and in the Texas *C. atrox* (*cinereus*). A serious difficulty lies in the cost of the considerable number of ampules that may be required.

Every physician in a rattlesnake country ought to own this work, which is interesting and readable and would seem destined to become a classic in its field. The author's hope in preparing this key is that it will be used by physicians unacquainted with herpetological classification, as an aid for proper identification of the various snakes involved in snake bite cases, thus building up dependable case records. Heretofore it has been deemed sufficient merely to report the animal offender as a "rattlesnake."

Röntgenbiologische Untersuchungen mit Gewebekulturen als Indikator. Von Børge Faber. Paper. Pp. 119, with 12 illustrations. Copenhagen: Levin & Munksgaard, 1935.

The author has endeavored to find expression for the rules of biologic effects of x-rays under different conditions. Normal tissue cultures have been used as a biologic measure-factor for this purpose. He first gives a brief report of the biologic units of measure now ordinarily employed. He then discusses the adaptability of tissue culture for this purpose, giving in detail the technic employed. The histology of normal fibroblast cultures is described and reference is made to a series of examinations of the cultures. The experiments show variations in the rate of growth in different cultures in such a way that some cultures which during the experiment grow more quickly than others continue to grow more quickly during the entire experiment. The velocity of growth of the single culture from day to day shows furthermore regular oscillations, caused by different external conditions (nutrition). If a comparison of growth is made in periods in which the cultures have the same external conditions, the velocity of growth is constant.

In experiments with irradiation the author describes the normal microscopic and macroscopic changes after the irradiation and after a series of examinations of the dependence of the effect of the rays on the ray quantity. Through these experiments it has been proved that the x-ray effect is a retardation effect which varies with the particular x-ray quantity. Doses under 200 roentgens do not cause any definitely proved retardation. The latest period for the x-ray effect is, under these circumstances, about twenty-four hours. It has been impossible to discern any stimulating effect. The lethal dose is about 1,200 roentgens, which however requires about six or seven days to cause absolute cessation of growth, and even four or five times the lethal dose does not hasten the death of cultures.

The influence of the quality of the rays on the biologic effects of a particular x-ray dose was next examined. Care must be taken that the same absorption ratio obtains in the physical ionization chamber as in the biologic test object. In the main the results of the previous examinations agree with the present experiments in showing that the biologic effect is independent of the ray quality.

The influence of the time factor on the biologic effect of a particular x-ray quantity has been answered differently by previous examiners. The majority maintain that Bunsen-Roscoe's rule (i.e. equals k) is valid for resting tissues, while Schwarzschild's rule (i.e. t^p equals k) is valid for growing tissues. Some authors have, however, also found Bunsen-Roscoe's rule valid for growing tissues. In the present five series of experiments, the validity of Bunsen-Roscoe's rule for growing tissues has been proved.

Previous workers have concluded that increased cell activity is followed by increased radiosensitivity. According to the present investigation, where the cell activity during the irradiation and the cell activity after the radiation have been examined separately it seems that an alteration of cell activity during the irradiation is not followed by any detectable alteration of the ray effect on the tissues.

Measuring Health Needs in an Urban District. By Dorothy G. Wiehl. Reprinted from *The Milbank Memorial Fund Quarterly*, Vol. XIV, Nos. 1, 2, and 4, January, April, and October, 1936. Paper. Pp. 57, with illustrations. New York: Milbank Memorial Fund, 1936.

District Health Administration: A Study of Organization and Planning. By Ira V. Hiscock, Professor of Public Health, Yale University School of Medicine. With a foreword by John L. Rice, M.D., Commissioner of Health, New York City. Published for the Milbank Memorial Fund. Paper. Price, 65 cents. Pp. 115, with 16 illustrations. Lancaster, Pennsylvania: Science Press Printing Company, 1936.

The measurement of the health needs in the Mott Haven District in New York as carried out by the Milbank Memorial Fund preceded the establishment of district health administration in greater New York. The pamphlet on measuring health needs is a reprint of articles appearing originally in the *Milbank Memorial Fund Quarterly* and representing studies of 1,049 families in the Mott Haven District, the Bronx, New York. The material should be of interest to physicians and public health workers, especially in view of the conclusion; namely, "lack of income was associated with the failure to obtain medical care, especially in the case of acute conditions; persons with diseases of an organic nature were attended at least as fre-

quently in poor families as in those with slightly higher incomes." "One half of the illnesses which received any care had had some free or part-pay care." The pamphlet on district health administration arises out of the extensive studies by Professor Hiscock in health administration in cities, counties and metropolitan districts. It deals mainly with the decentralization plan of health department administration developed in New York City. Reference is also made to some other health centers. While the author has a clear conception of the importance of the practicing physician in health programs, his study of health centers, nevertheless, brings out the fact that this development, while highly desirable from the administrative point of view, shows definite dangers of trends toward competition by health departments with practicing physicians. District health centers are undoubtedly a necessity from the administrative standpoint in great cities and are a logical outcome of the district or community character of these cities. If properly carried out, such decentralization should have a favorable effect both on health administration and on medical practice, but it will be necessary for physicians to keep fully informed as to developments in district health administration.

Illustrations of Regional Anatomy. By E. B. Jamieson, M.D., Senior Demonstrator and Lecturer, Anatomy Department, University, Edinburgh. Section VI: Upper Limb; Section VII: Lower Limb. Paper. Loose-leaf. Price, \$2; \$3; \$14, per set of 7 sections, 42 plates; 52 plates. Baltimore: William Wood & Co., 1936.

Sections VI and VII complete the set of "Illustrations of Regional Anatomy" prepared by Dr. Jamieson. These two are devoted to the extremities, the rest of the body having been covered in sections I to V; in all they constitute a regional atlas of 297 plates. The drawings are based on blackboard sketches made by Dr. Jamieson in his lectures at Edinburgh, and these sketches were based in turn on special dissections made for those lectures. Colors are used abundantly and the plates are so bound that any one of them can be easily removed and replaced. Plates that are especially interesting because they represent structures and relations not so well shown in other atlases are those representing sections through the joints—elbow, wrist, knee, ankle and transverse tarsal (Chopard's joint). The relations in these interesting regions are well shown. Other plates show the mucous sheaths of tendons in the hand and foot especially well. Because of its regional character, this atlas is a valuable supplement to the systematic atlases of Toldt, Spalteholz and Sobotta, commonly used by American students.

Catalogue of the National Collection of Type Cultures Maintained by the Council at the Lister Institute of Preventive Medicine, Chelsea Bridge Road, London, S.W. Medical Research Council, Special Report Series, No. 214. Fourth edition. Paper. Price, 2s. 6d. Pp. 159. London: His Majesty's Stationery Office, 1936.

A list of the extensive collection of wood-destroying fungi, and fungi causing discoloration of timber belonging to the Forest Products Research Laboratory, Princes Risborough, Bucks., has been added. By special arrangement with the authorities of the Lister Institute for Preventive Medicine, of the National Institute for Medical Research, of the Veterinary Laboratory of the Ministry of Agriculture and Fisheries and of the Rothamsted Experimental Station, a list of filtrable viruses and of bacteriophages has also been included in this catalogue. Subcultures are obtainable by application to the curator, who will refer requests to the proper authorities of the corresponding institutions. The nomenclature adhered to in this volume accords in principle with the recommendations of the Nomenclature Committee of the International Society for Microbiology. The emendations in bacterial nomenclature suggested by the American systematists, as embodied in Bergey's Manual of Determinative Bacteriology, are entered in this volume in brackets after the names of bacteria concerned. The collections represented in the catalogue appear to be all embracing and down to date. The taxonomic position of the trouble-giving genus *Salmonella* has been investigated by a subcommittee of the Nomenclature Committee of the International Society for Microbiology. Its recommendations have been embodied in the catalogue. The nomenclature adopted however, remains unofficial until approved by the Nomenclature Committee itself. The following additional information

makes this catalogue of particular value to workers in the field of microbiology: reference number; particulars of the type, group or variety to which the strain belongs; name of the person from whom the strain was received; identification mark by which the strain has been known previously; particulars of the source from which the strain was isolated, and a short statement concerning some differentiating characteristics of the species or strain.

Studies In Infant Speech and Thought. Part I: The Development of Sentence Structure in Infancy from the Viewpoint of Grammar; A Quantitative Analysis of the Continuous Speech Record of Two Infants. By Abraham A. Low, M.D., Assistant Professor of Neuropsychiatry, University of Illinois. *University of Illinois Bulletin* Volume XXXIII, No. 39. Illinois Medical and Dental Monographs, Volume I, No. 2. Paper. Price, \$1. Pp. 71. Urbana, Illinois: University of Illinois, 1936.

"The main purpose of the present study was to evolve methods rather than to draw conclusions from the elaborated material." The primary object of this record is to work out a method that would show the language development of the child. This is a valuable type of study and it is apparently written with no thesis to prove but with an objective point of view. It is a highly technical study in monograph form with many valuable charts and tables. It is modestly stated, which perhaps is not so usual in monographs but that it might be mentioned. It is the study of the observations of two mothers of their two children, one a boy 1 year and 4 months of age at the beginning of the study and the second a child of 2 years and 8 months. In the study of the first child, 4,500 utterances were recorded and 3,815 analyzed. In the speech of the second child 8,000 were recorded and 3,190 analyzed. There is a question whether these are typical language responses, because the very act of being observed to the point of recording doubtless had put considerable emphasis on speech, which might easily cause it to develop atypically. This is a splendid study, and although it makes no effort at an analytic survey it does cover its own field well. Perhaps the writers will continue and enlarge this valuable type of study. It might be suggested that similar studies be made covering, of course for only a sampling period, the speech structure used by the adult members of the families of these children. Certainly in adults of the same approximate education, language structure differs materially. "Wanna go" might be commonplace in one well educated family and the full sentence structure be used in another. These deviations in the casualness of speech as against the formality of speech in the adults of the families might have had a definite influence on the speech of the children.

Kidney Pain: Its Causation and Treatment. By J. Leon Jona, D.Sc., M.D., M.S., Hon. Assistant Gynecological Surgeon, Women's Hospital, Melbourne. Cloth. Price, 7s. 6d. Pp. 94, with 61 illustrations. London: J. & A. Churchill, Ltd., 1937.

The object of this book is to bring before medical practitioners some views of the author on the causation of obscure kidney pain and its treatment. These ideas are the outcome of his own researches on the physiology of the kidney pelvis, both normal and pathologic. The approach has been from the experimental as well as the clinical side. The chief object has been to bring forward methods that may be used in attempting to elucidate the causation of obscure kidney pain when the ordinary methods of investigation have failed. These methods are pyeloscopy and pyelometry. Radiopaque fluid is injected through a ureteral catheter and the renal pelvis observed under the fluoroscope while the injection is being made; this method is called pyeloscopy. The term "pyelometry" is applied to the method of graphic recording of kidney contractions; variations in the volume of the renal pelvis indicate changes in the activity of the renal-pelvis musculature. The recording is accomplished by means of a special apparatus, which consists chiefly of a tambour carrying a writing point and connected with a ureteral catheter, filled with physiologic solution of sodium chloride. With these methods the author studied the action of various drugs on the renal pelvis and ureter. His experimental and clinical observations indicate the value of both methods, in conjunction with the ordinary pyelogram, as aids in arriving at a diagnosis in various obscure conditions causing pain in the kidney region. The booklet should be of great interest to every urologist.

Domestic Heating by Gas Considered from the Point of View of Health and Comfort. Report of an Advisory Committee Appointed by the College at the Request of the Governor of the Gas Light and Coke Company. Approved for publication by the Comilla of the College, July, 1936. Paper. Price, 1s. Pp. 31. London: Royal College of Physicians of London, 1936.

"This report is the outcome of the deliberations and investigations of a Medical Advisory Committee appointed with the approval of the Royal College of Physicians and at the request of the Governor of the Gas Light and Coke Company to consider problems arising out of modern developments in the use of gas for domestic heating and of changes in methods of building construction, with special reference to the significance to health and comfort of the use of flueless gas appliances in rooms unprovided with flues or other devices which promote ventilation." Quite aside from its scientific value, the pamphlet possesses a grace of phraseology and a precision of thought seldom encountered in modern medical literature. The report suggests that a study of the necessary air change in the ordinary bedroom or living room offers a desirable field of investigation, since this question has not been adequately considered. It suggests that such rooms, heated by gas, be provided with flues. It is pointed out that, under ordinary conditions, chemical changes in the air due to the use of gas for illuminating purposes is of no great importance under ordinary conditions. Of special interest to those interested in the prevention of asphyxial death is the finding that illuminating gas containing from 10 to 30 grains of sulfur oxide per hundred cubic feet automatically acts as a warning agent against the toxic effects of carbon monoxide. The view is also expressed that carbon monoxide is not cumulative in the sense that lead poisoning is cumulative, and that concentrations of 0.01 are well tolerated over long periods. (Under ordinary conditions of gas heated rooms, the concentration of carbon monoxide is approximately 0.005.) The possible carbon dioxide accumulation seldom exceeds 1 per cent maximum and is not regarded as serious. This pamphlet should be on file in all libraries where information relative to carbon monoxide poisoning may be requested.

Juvenile Paresis. By William C. Menninger, M.D. The Menninger Clinic Monograph Series No. 1. Cloth. Price, \$3. Pp. 199, with 16 illustrations. Baltimore: Williams & Wilkins Company, 1936.

This is the first monograph of a projected series from the Menninger Clinic and its excellence has set a standard of achievement which subsequent volumes will have difficulty in maintaining. The work is a complete treatise on juvenile dementia paralytica. It is well written, thoroughly documented from the literature and the author's own experience, and has an extensive and adequate bibliography. It is well illustrated and contains many easily read tables. The subject matter is exhaustively discussed in easily readable style. Rarely has a monograph accomplished its aim so successfully. Each chapter is summarized and from the numerous conclusions no serious divergence of opinion is possible in the light of our present evidence. The book should be of universal service to physicians.

Traité de thérapeutique clinique. Par Paul Savy, professeur de clinique médicale à l'Université de Lyon. In three volumes. Cloth. Price, 360 francs, per set. Pp. 2,734. Paris: Masson & Cie, 1936.

This system of clinical therapy will no doubt make a place for itself in the literature on therapeutics, for it has been written by a man with a great deal of clinical experience and it puts strong emphasis on the practical as contrasted with the theoretical. It is copiously interspersed with formulas. The pharmacodynamics of the important remedies is extensively discussed. Surgical indications, whenever present, are also carefully formulated. This excellent text and reference book may be unreservedly recommended to the physician who reads French.

Lehrbuch der Geisteskrankheiten. Von Oswald Bumke. Fourth edition. Paper. Price, 21 marks. Pp. 632, with 128 illustrations. Munich: J. F. Bergmann, 1936.

This is virtually a new work. The author has kept pace with the changing concepts in psychiatry and profited by the special work of his younger colleagues. Yet he ignores dynamic psychiatry and dismisses it as "awful nonsense" and perpetuates a modified kraepelinian descriptive psychiatry resting on an organic point of view. However, the volume remains one of the best psychiatric textbooks published.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Poisons: Injuries Attributed to Use of Eyelash Dye.—The plaintiff suffered painful and serious injuries as the result of the application of a preparation designed to darken eyebrows or eyelashes. She sued the Powder Box Beauty Shoppe, where the preparation was applied, and the manufacturer of it, the Ey-Tec Company, in the city court of New York, Kings County, but at the close of the trial the plaintiff consented to a dismissal of the case against the beauty shop.

The label affixed to the container of the preparation read as follows:

Non-Toxic Safe Lasting Ey-Tec contains no paraphenylenediamine, no aniline derivatives, no poisonous metals. It complies with all pure food and drug regulations. It requires no predisposition test. Ey-Tec may even be dropped into the eyes without harm, and may be used with absolute safety. Ey-Tec a product of Ey-Tec Co.—425 Fifth Ave.

It was testified that the substance of the statement appearing on the label was brought to the attention of the plaintiff before the preparation was applied and that she relied on the statement. It was undisputed that the Ey-Tec contained as active ingredients silver nitrate, ammonia and pyrogallol acid. A chemist for the plaintiff testified that the percentages of these ingredients found in the preparation were poisonous, harmful and dangerous for external use about the human face and especially in and about the eyes. The chemist for the manufacturer admitted the presence of the ingredients but contended that they were not present in such percentages as to make the use of the preparation dangerous. The manufacturer claimed to have sold a quantity of Ey-Tec without knowledge heretofore of a harmful result and to have tested the formula about and in the eyes of animals with no harmful results. In the opinion of the court, however, the plaintiff sufficiently connected her injuries with the application of the preparation. In *Karr v. Inecto, Inc.*, 247 N. Y. 360, 160 N. E. 398, the Court of Appeals of New York said:

Before the plaintiff may recover she must show, first, that the injury to the finger resulted from contact with the chemical product manufactured by the defendant; second, that the chemical product was inherently dangerous and poisonous; and third, that the defendant was negligent in putting upon the market a dangerous and poisoning product.

And, again:

If the evidence establishes that the liquid contained in the bottles of dye used by the plaintiff was dangerous and poisonous, then from the fact that the injury followed contact with the dye we might draw the inference that the injury was the result of that contact. In such case, too, we might without further evidence as to how these particular bottles happened to contain a dangerous and poisonous liquid infer that such a condition could not have arisen without fault on the part of the employees of the defendant.

In the present case, the court thought that all the elements mentioned in the opinion in the *Karr* case were present and that the same inference was warranted. Accordingly, the court entered judgment in the sum of \$2,000 for the plaintiff. A motion for leave to appeal was denied (288 N. Y. S. 1078).—*Bundy v. Ey-Tec, Inc.* (N. Y.), 289 N. Y. S. 905.

Workmen's Compensation Acts: Pulmonary Tuberculosis Attributed to Leg Injury.—An employee in 1930 sustained during the course of his employment an injury to the lower part of his left leg for which he was paid compensation. In 1934 the employee died of pulmonary tuberculosis and his widow applied to the department of labor and industries for a widow's pension, claiming that the original injury sustained by her husband had developed a tuberculous condition, which was the causal factor of death. The department rejected the claim on the ground that the death of the employee did not result from the leg injury. The superior court sustained the finding of the department, and the claimant appealed to the Supreme Court of Washington.

A physician who had known the employee for eleven years and who had treated him for his leg injury testified that an injury to any part of the body might possibly have a tendency

"to give place for the development of tubercular bacteria." He further testified, however, that although an injury to a part of the body might result in its devitalization, it would not have a tendency to localize a tubercular condition. The other physician who testified for the claimant had never seen the deceased employee. In response to hypothetical questions, he testified that, in the absence of other factors, he would attribute the death of the employee to miliary tuberculosis having its inception in the injury to the leg and finally localizing in the lung. He testified, however, that he could not positively say what was the direct cause of the employee's death.

In the opinion of the Supreme Court, there was ample evidence to justify a finding that the death of the employee, although caused by tuberculosis, was not the result of the injury to the leg. The judgment against the claimant was therefore affirmed.—*Mattson v. Department of Labor and Industries* (Wash.), 60 P. (2d) 248.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olm West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 7. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastroenterological Association, Atlantic City, N. J., June 7-8. Dr. Valnut St., Philadelphia, Secretary.
- American Swampscoot, Mass., May 31-June 2. Dr. Rich, Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Gormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society of Otolaryngology and Rhinology, Philadelphia, June 2-6. Dr. A. S. Giordano, 511 Locust St., Philadelphia, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Allergy, Atlantic City, N. J., June 7-8. Dr. Warren T. Vaughan, 201 West Franklin St., Richmond, Va., Secretary.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Montana Medical Association of Great Falls, July 13-14. Dr. E. G. Balsam, 208 1/2 North Broadway, Billings, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Wat St., Providence, Secretary.
- Rocky Mountain Medical Association, Denver, July 19-21. Mr. Harvey T. Sethur, Denver, Secretary.
- Vancouver Medical Association, Vancouver, B. C., June 22-25. Medical-Dental Bldg., Vancouver, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

60: 341-516 (March) 1937

- Studies on Physiology of Lactation: VI. Endocrine Influences Concerned in Development and Function of Mammary Gland in the Guinea-Pig. W. O. Nelson, Chicago.—p. 341.
Effect of Spaying and Theelin Injections on Body Growth and Organ Weights of the Albino Rat. O. A. Billeter, Minneapolis.—p. 367.
Embryology of the Guinea-Pig: I. Table of Normal Development. J. P. Scott, Chicago.—p. 397.
Uterine Macrophages in Mouse and Their Relation to Involution. R. A. Deno, Richmond, Va.—p. 433.
Structure and Reactions of Small Blood Vessels in Amphibia. B. W. Zweifach, New York.—p. 473.

American Journal of Diseases of Children, Chicago

53: 933-1178 (April) 1937

- Serum Lipids in Eczema and in Other Pathologic Conditions. A. E. Hansen, Minneapolis.—p. 933.
Role of Peripheral Circulation in Pneumonia in Children. D. Greene, New York.—p. 947.
*Effect of Carbohydrate on Certain Factors in Fatigue. F. W. Schlutz and Eleanor Blish, Chicago.—p. 960.
Susceptibility of the New-Born to Acute Bacillary Dysentery: Serologic Data on Placental Transmission of Antibodies to Bacillus Dysenteriae. J. Felsen and A. G. Osofsky, New York.—p. 975.
Growth and Basal Metabolism: V. Basal Metabolism of High School Children. I. Nakagawa, Tokyo, Japan.—p. 985.
Id.: VI. Changes in Basal Metabolism of Children During Puberty. I. Nakagawa, Tokyo, Japan.—p. 991.
Precordial Lead of Electrocardiogram of Normal Children. A. M. Master, S. Dack and H. L. Jaffe, New York.—p. 1000.
*Functional Hypoglycemia of Childhood, with Particular Reference to Recurrent Convulsive Manifestations. J. M. Rector, San Francisco, and R. E. Jennings, East Orange, N. J.—p. 1012.
Immunologic and Bacteriologic Features of Pneumococcal Infections in Nephrosis. S. C. Peacock and Marie Werner, Chicago.—p. 1022.
Acute Appendicitis in Exanthems. J. G. M. Bullowa, E. J. McCabe, New York, and S. M. Wishik, Flushing, N. Y.—p. 1029.
Meeting the Needs of the Community. H. E. Thelander, San Francisco.—p. 1060.

Effect of Carbohydrate in Fatigue.—In order to determine the effect of the nutritional state on fatigue, Schlutz and Blish studied the changes in the acid base balance and in the sugar content of the blood after exercise on sixteen children between the ages of 8 and 13 years. The effects of exercise were observed in the fasting state and after the ingestion of various sugars, principally dextrose and levulose. Fourteen of sixteen subjects who exercised during fasting showed increase in fixed acid after fifteen minutes of exercise. The response of the asthenic child to the fixed acid produced was not uniformly unlike that of the normal child, but differences were seen in the samples taken at exhaustion. The normal child showed a lower value for fixed acid at the peak than did the asthenic child. This tends to indicate a greater improvement in oxygen transport and therefore a quicker response for the delay of fatigue. When sugar was given just before exercise, six of the sixteen children showed that the entrance of fixed acid was inhibited after fifteen minutes or at exhaustion, and in many experiments in which this change was not seen there was a more abrupt drop in the curve toward exhaustion when sugar had been given. Three of four children who were given sugar one-half or one hour before exercising showed a more rapid effect on the depression of fixed acid than was seen when sugar was given simultaneously with exercise. The ability to store sugar improved with exercise, as indicated by the depressed curve for sugar in the blood during the period of exercise. Training further increases the efficiency of the mechanism for glycogen storage as well as that for oxygen transport. Lactose and sucrose had no inhibiting effect on

the rise in the level for fixed acid during exercise in the subjects studied. In all subjects studied, exercise produced a depression in the curve for sugar as determined with the same amount of sugar without exercise.

Hypoglycemia of Childhood and Recurrent Convulsions.—A study of eleven cases of hypoglycemia associated with recurrent convulsions, together with a review of the reports previously contributed, suggests to Rector and Jennings that among infants and children hypoglycemia is usually a functional hepatic disorder of intermittent character, resulting from a temporary depletion of the glycogen reserve. In most cases the condition is amenable to conservative management, and the prognosis is infinitely better than it is for older patients with hypoglycemia, which is often organic. While hypoglycemia is undoubtedly not a frequent cause of convulsions in childhood, continued emphasis on the desirability of making studies of the blood sugar in all cases of obscure convulsive disorders may demonstrate a current incidence greater than is now accepted.

American Journal of Pathology, Boston

13: 149-324 (March) 1937

- The Problem of Infection as Presented by Bacterial Invasion of Chorio-Allantoic Membrane of Chick Embryos. E. W. Goodpasture and Katherine Anderson, Nashville, Tenn.—p. 149.
Concerning Pathogenesis of Typhoid Fever. E. W. Goodpasture, Nashville, Tenn.—p. 175.
Histopathology of Natural and Experimental Canine Distemper. W. A. DeMonbreun, Nashville, Tenn.—p. 187.
Basophil Infiltration in Neurohypophysis. Deborah C. Leary and H. M. Zimmerman, New Haven, Conn.—p. 213.
Local Anaphylactic Lesions of the Brain in Guinea-Pigs. L. Alexander and A. C. P. Campbell, Boston.—p. 229.
Nutritional Edema in the Dog: IV. Peptic Ulcer Produced by Same Low Protein Diet That Leads to Hypoproteinemia and Edema. A. A. Weech and B. H. Paige, New York.—p. 249.
Significance of Myelin Sheath Degeneration and Its Relation to Incoordination. D. F. Eveleth and H. E. Biester, Ames, Iowa.—p. 257.
Mesenteric Chyloadenectasis: Report of Case. J. M. Hill, Dallas, Texas.—p. 267.
Diffuse Parietal Endocardial Sclerosis: Review of Literature and Report of Two Cases. W. J. Comeau, Freiburg, Germany.—p. 277.
*Combined Infantile and Adult Coarctation of Aorta with Coincident Occlusion of Vena Cava Superior: Report of Case. K. B. Benkwitz and W. C. Hunter, Portland, Oregon.—p. 289.
Chronic Diffuse Mesenteritis: Report of Two Cases of Unusual Type. E. E. Sproul and J. J. Hawthorne, New York.—p. 311.

Coarctation of Aorta with Occlusion of Superior Vena Cava.—While conforming to the usual picture of aortic coarctation in respect to age, sex, the bicuspid aortic valve, development of collateral circulation and notching of the ribs, the case that Benkwitz and Hunter report differs sharply from nearly all others studied heretofore in that there occurs both an infantile and an adult type of coarctation. The coexistence of infantile and adult coarctation lends support to the hypothesis of Craigie that the basis of the anomaly lies in an embryologic disturbance of formation and involution of the primitive aortic arch. Another observation that makes the case differ from the group of aortic coarctation is the concomitant occlusion of the superior vena cava and its innominate tributaries, necessitating the development of a venous collateral return for the head, neck, upper extremities and thorax fully as extensive and intricate as the aortic coarctation demanded of the arterial circulation in order that the abdomen, lower extremities and most of the thorax might receive arterial blood. Thus, of necessity, over the torso both the arterial and the venous blood flowed caudally and in parallel vessels. The only possible clue as to the cause of the fully organized and canalized thrombosis of this vessel is that in conjunction with the pericarditis or pleuritis there may have been a thrombophlebitis of the superior vena cava and its tributaries. Contributing to the final cardiac decompensation was not only the coarctation of the aorta but the healed pericarditis and pleuritis binding the contents of the thorax to the wall of the chest and the diaphragm, thus throwing an additional load on the already burdened heart. In conjunction with the bicuspid aortic valve was a calcified ring which may be classed as a subaortic stenosis, an uncommon yet clinically important cardiac lesion. The case illustrates the ability of the circulatory system to compensate for obstructions of even major vessels and the reserve strength of the heart which withstood not only the

coarctation but also, prior to the last attack, the toxic effects of pneumonia and empyema and carried the increased load occasioned by the adhesive pericarditis and pleuritis for an indefinite period.

American Journal of Public Health, New York

27: 211-312 (March) 1937

- Epidemiologic Studies in Influenza. T. Francis Jr., New York.—p. 211.
Observations on Use of Copper and Chloramines in Water Purification. A. E. Griffin, Newark, N. J.—p. 226.
*Carrier-Borne Typhoid Fever in New York State, with Especial Reference to Attack Rates Among Household Contacts. E. L. Stebbins and Elizabeth Reed, Albany, N. Y.—p. 233.
Bacteriology of Epidemic Diarrhea: Preliminary Report. N. R. Ziegler, Columbia, Mo.—p. 241.
Mental Hygiene Component of a City Health District. Ruth E. Fairbank, Baltimore.—p. 247.
Standards for Determining Suitability of Bile Specimens for Detection or Release of Typhoid Carriers. F. C. Forsbeck and Harriett C. Hollon, Lansing, Mich.—p. 253.
Some Implications Afforded by Mortality and Morbidity Statistics. D. K. Brundage, Washington, D. C.—p. 261.
Engineering Aspects of Malaria Control by State Health Departments. G. H. Hazlehurst, Montgomery, Ala.—p. 267.

Carrier-Borne Typhoid in New York State.—Stebbins and Reed point out that 570 chronic typhoid carriers have been declared in New York State from 1911 through 1935. Exclusive of fifty-nine carriers discovered in state institutions, 72 per cent of all carriers were discovered by epidemiologic investigation of sporadic cases of typhoid. The incidence of typhoid among the household contacts of carriers was found to be forty-two times that in the general population. The ratio of cases to carriers before and after discovery was significantly different, entirely as the result of a high ratio in the first ten years of "carrier age" before discovery. The attack rates among unvaccinated household contacts of carriers was studied by means of "exposure age" and "carrier age." The attack rate among unvaccinated household contacts of carriers was found to be five times that of vaccinated contacts.

American Journal of Surgery, New York

36: 1-416 (April) 1937. Partial Index

- Wounds and Their Complications. W. W. Babcock, Philadelphia.—p. 3.
Treatment of Open Infected Wounds. H. S. F. Cooper, New York.—p. 11.
*Acute Lymphangitis. W. A. Steel, Philadelphia.—p. 37.
Treatment of Burns with Brilliant Green. J. K. Narat, Chicago.—p. 54.
Infections of Head. R. E. Church, New York.—p. 57.
Malignant Tumors of Head. G. A. Wyeth, New York.—p. 63.
Foreign Bodies in External Auditory Canal. H. Rosenwasser, New York.—p. 96.
Incisions of Drum Membrane in Otitis Media. J. G. Druss, New York.—p. 102.
*Treatment of Boils and Carbuncles. D. Gordon, New York.—p. 107.
Furuncle of Upper Lip. G. H. Pratt, New York.—p. 118.
Acute Pyogenic Parotiditis. J. Henderson, New York.—p. 125.
Wens. F. N. Dealy, Jamaica, N. Y.—p. 132.
Moles, Warts and Keloids. J. L. Morse, New York.—p. 137.
Hemorrhage Following Tonsillectomy. M. C. Myerson, New York.—p. 151.
Office Treatment of Bartholin's Gland Abscess or Cyst. A. Mathieu, Portland, Ore.—p. 219.
Pathology and Office Treatment of Chronic Endocervicitis. H. B. Matthews, Brooklyn.—p. 233.
Pruritus Ani: Review of 131 Cases Followed Over an Eight Year Period. M. P. Cowett, New York.—p. 262.
Pilonidal Cysts: Excision and Primary Suture in Ambulatory Patients. L. K. Ferguson and P. M. McCray Jr., Philadelphia.—p. 270.
Office Surgical Treatment of Injuries of Knee. R. M. Toll, New York.—p. 328.
Frost-Bite: Treatment by Passive Vascular Exercise: Report of Cases. H. L. Murphy, Brooklyn.—p. 370.
Ambulatory Saphenous Ligation: Report of 100 Consecutive Cases. S. Z. Hawkes and I. P. Borsher, Newark, N. J.—p. 398.
Artificial Pneumothorax: Practical Aspects of Its Application to Pulmonary Tuberculosis. E. Mayer and M. Dworkin, New York.—p. 403.

Acute Lymphangitis.—Steel believes that acute lymphangitis involves, simultaneously, the superficial lymph vessels and glands and might be better termed acute lymphangio-adenitis. Serious infections follow trivial skin wounds in those whose occupations predispose to skin soiling with infected material; i. e., doctors, nurses, laboratory technicians, undertakers or persons with diabetes. The red skin line running from a skin wound to the nearest tender lymph node is the primary symptom. The serious case shows rapid spread of local signs within two to six hours and a chill within the first thirty-six hours.

The lymph nodes involved are fairly consistent in infections of the different body areas. A differential diagnosis between acute lymphangio-adenitis and acute thrombophlebitis is outlined. Primary local treatment is directed toward assisting those natural processes which the body calls forth to combat infection; i. e., rest, large wet hot compresses and no local meddlesome surgery. The treatment of the sequels—palmar abscess, localized glandular abscess, diffuse purulent cellulitis and septicemia—is presented. Blood transfusion is the most reliable agent for septicemia, assisted by saline solution hypodermoclysis and dextrose solution intravenously. In palmar abscess the recommendation is clean cut incisions in the palm and above the wrist, wet dressings, no drains, Bier's passive hyperemia by an elastic bandage to the upper arm every two hours for two hours, soaking the hand in hot saline solution fifteen minutes between the rubber bandage applications, and squeezing the pus out gently through the incisions twice daily. In localized glandular abscess when superficial fluctuation is present, the abscess should be opened by a simple incision without retraction, curettage or digital exploration. The wall of leukocytes and fibroblasts surrounding the now functionless glands is nature's limiting wall against further entry of infectious matter into the systemic circulation and should not be broken down. For diffuse purulent cellulitis, simple incisions are to be made over each fluctuating area as it presents itself.

Treatment of Boils.—Gordon believes that the greatest adjunct to the treatment of boils and carbuncles is eradicating autoinfection. A lesion that is not draining and the size and depth of which preclude the use of emplastrum salicylate Klotz, or in which the tension is associated with tender lymph nodes, indicates incision and should be opened under a local anesthetic. A boil that has been adequately incised at the right time will require no more than a piece of rubber dam for a drain, aided by 2 per cent salicylic acid ointment to keep the incision open. Areas surrounding any of these lesions should be shaved sufficiently to prevent adhesive plaster used in dressings adhering to any existing hair. Benzine should be used to float off such adhesive followed by alcohol and careful cleansing with hydrogen peroxide and green soap. Any irritation should be treated with calamine solution without phenol until the irritation has subsided. Lesions in specific regions call for special procedures in conjunction with the foregoing. The specific technic for caring for furuncles and carbuncles of the nose, upper lip, axilla and face is outlined. One of the most emphatic "don'ts" in surgery is don't squeeze; puncture these lesions with a needle or sharp instrument to prevent injuring the protective barrier that has formed around minute nasal furuncle infections. Physicians and nurses are conspicuously remiss in handling infected dressings with ungloved hands and without instruments. It is imperative when doing dressings of boils and carbuncles and infected cases always to use instruments to handle the dressings and sponges and sterile gloves when possible to avoid contaminating themselves, associates and patients. A small infection with three or four closely grouped openings can be treated as a boil unless it presents a picture of spreading induration with slight tenderness. Then it should be treated as a carbuncle. In diabetic patients any suppurative process tends to maintain a high blood sugar. This calls for a more complete and immediate eradication of the suppurative or necrotic lesion than in the nondiabetic. Operative procedures for other than the smallest lesions should be done in a hospital. It affords an assistant for retraction and exposure to remove necrotic tissue and control bleeding, as well as a surgical nurse and anesthetist. Before discharge the patient should be instructed how to care for any small follicular infection that might develop and to use all the prophylactic measures possible. Hydrogen peroxide should be used for its mechanical cleansing. The author has used a single application of gentian violet and methylene blue 5 per cent solution in 70 per cent alcohol, as advised by Kingsley Roberts for skin infection over limited areas with success in conjunction with the foregoing principles. He believes it is an excellent penetrating, nonirritating skin disinfectant with a prolonged action. Soap and water followed by ether are sufficient for preparing the skin. The use of vaccines in the presence of careless surgical cleanliness is of little value and should not be relied on.

to do a surgeon's work. However, in conjunction with careful clean surgery they are occasionally an aid in stubborn cases. The relationship of staphylococcus carriers to generalized staphylococcal infection is discussed.

American Journal of Tropical Medicine, Baltimore

17: 137-312 (March) 1937

- Distribution of Yellow Fever Immunity in North America, Central America, the West Indies, Europe, Asia and Australia, with Especial Reference to Specificity of Protection Test. W. A. Sawyer, J. H. Bauer and L. Whitman, New York.—p. 137.
- Organization of Viscerotomy: Service of Brazilian Cooperative Yellow Fever Service. E. R. Rickard, Rio de Janeiro, Brazil.—p. 163.
- Observations on Importance of Anopheles Punctimacula as Malaria Vector in Panama, and Report of Experimental Infections in Anopheles Neomaculipalpus, Anopheles Apicimacula and Anopheles Eiseini. J. S. Simmons, Ancon, Canal Zone.—p. 191.
- Observations on Induced Falciparum Malaria. M. F. Boyd and S. F. Kitchen, Tallahassee, Fla.—p. 213.
- Notes on Anopheles Walkeri Theobald. R. Matheson and H. S. Hurlbut, New York.—p. 237.
- Further Note on Infectiousness of Anopheline Mosquitoes Infected with Plasmodium Vivax and Plasmodium Falciparum. M. F. Boyd and S. F. Kitchen, Tallahassee, Fla.—p. 245.
- Infectiousness of Patients Infected with Plasmodium Vivax and Plasmodium Falciparum. M. F. Boyd and S. F. Kitchen, Tallahassee, Fla.—p. 253.
- Clinical Intestinal Amebiasis: Study of 400 Cases from Charity Hospital at New Orleans. E. H. Hinman and R. H. Kampmeier, New Orleans.—p. 263.
- Malaria in Camden County, New Jersey: Report of Recent Outbreak. D. C. A. Butts, Philadelphia.—p. 279.
- Studies on Malaria in the Tennessee Valley: Influence of Physiography on Occurrence of Breeding Places of Anopheles Quadrimaculatus in Northern Alabama. R. B. Watson and E. L. Spain Jr., Wilson Dam, Ala.—p. 289.

Annals of Otol., Rhinol. and Laryngology, St. Louis

46: 1-288 (March) 1937. Partial Index

- Intracranial Complications of Otogenous Thrombosis of Lateral Sinus. J. M. Nielsen and C. B. Courville, Los Angeles.—p. 13.
- Anatomic and Clinical Study of Central Lesions Producing Paralysis of Larynx. A. C. Furstenberg, Ann Arbor, Mich.—p. 39.
- *Headache from Nasal Wall. H. H. Burnham, Toronto.—p. 69.
- Surgical Removal of Sphenopalatine Ganglion: Report of Three Operations; Elaborating an Original Technic to Expose Pterygopalatine Fossa, Command the Internal Maxillary Artery and Its Terminals and Infra-Orbital Nerve and Its Branches. E. C. Sewall, San Francisco.—p. 79.
- *Eighth Nerve High Tone Deafness from Nutritional Standpoint. G. Selfridge, San Francisco.—p. 93.
- Temporomandibular Joint Malocclusion and Inner Ear, Neuromuscular Explanation. E. P. Seaver Jr., New Bedford, Mass.—p. 140.
- Malignant Disease of Sinuses and Nasopharynx, in the Small Hospital. F. T. Hill, Waterville, Maine.—p. 158.
- Ultra Short Wave Currents in Treatment of Ear, Nose and Throat Conditions. A. F. Laszlo, New York.—p. 174.
- Oral and Pharyngeal Manifestations of Dermatologic Conditions. H. Montgomery, Rochester, Minn.—p. 179.
- Hemolytic Streptococcal Mastoiditis: Comparative Study of 100 Cases in Contagion and in Noncontagion. V. Harrell, Detroit.—p. 194.
- New Method of Rhinoplasty for Sinking of Tip of Nose. J. N. Roy, Montreal.—p. 203.
- Prevention of Deafness in School Child. B. R. Shurly, Detroit.—p. 223.

Headache from Nasal Wall.—The source of a particular headache or pain of nasal cavity origin is described, involving the trigeminal nerve. Burnham advances a hypothesis for the explanation of this headache or pain: 1. The irritation within the nasal mucosa from the products of bacterial invasion produces a hypersensitive or susceptible state. 2. As a result, substances normally produced in the tissues from external stimuli, such as changes of atmosphere, drafts, and the like, cause excessive stimulation of the neurovascular mechanism and sensory nerves. The headache or pain that results is in the nature of a "referred pain" and involves one or more branches of the trigeminal. 3. The "tender spot" beneath the nasal bridge is believed to be due to pressure from congestion on the trunk of a hypersensitive nerve (a branch of the anterior ethmoid) in a bony foramen or canal, and this in turn may aggravate or produce the headache or pain. The hypothesis applies to the pain associated with sinusitis. A cotton applicator introduced into the nasal cavity will indicate, as a rule, a hypersensitive condition of the mucosa. If the cotton is moistened with a 3 per cent solution of ephedrine in saline solution and applied to the middle turbinate, spectacular relief may be experienced by the patient in a few minutes. He will say in a surprised tone that "the headache is gone." A further search was made for tender spots with the finding of an excessively tender spot just beneath the bridge of the nose.

When a cotton applicator soaked in ephedrine was passed along the bridge of the nose in the narrow channel formed at the junction of the septum and the lateral nasal wall, the patient experienced a sudden severe pain. In a few minutes, as a rule, great relief is experienced from the headache, and the "spot" becomes less tender. This "tender spot" is situated over the course of the lateral nasal nerve, a branch of the anterior ethmoid. Presumably this nerve, or a branch of it, leaves the bony canal at this point in these cases and is subject to pressure from the vascular coat in the periosteum about it. The ephedrine causes contraction of the overlying veins and presumably those in the neighboring canal, and in this manner the pressure on the nerve is relieved. The result is often amazing and of diagnostic significance.

Eighth Nerve High Tone Deafness and Nutrition.—Selfridge declares that the work of Peters of Oxford proves conclusively that some factor in the vitamin B complex is necessary for perfect biologic equilibrium. Thus the oxidative reduction system is necessary in order to prevent the accumulation of lactic acid in certain parts of the brain. The finding of a definite demyelination in both branches of the eighth nerve in a series of rats and chicks on a diet deficient in the different factors of the vitamin B complex B₁, B₂, and especially the filtrate factors B₆B₇ or K₁K₂ as shown in Covell's histopathologic studies, warrants the assertion that the lack of sufficient vitamin B in the human diet is probably the principal cause of the degeneration found in the eighth nerve. The clinical use of B₁ parentally, B₁B₂ absorbate, and particularly the rice bran B complex, appears to be the cause of the improved hearing noted in the audiograms of clinical cases. Large doses of carotene (30,000 units daily) over a period of months have caused no further change in hearing as demonstrated by the audiograms. Perhaps if the dosage of carotene or vitamin A was carried on over a longer period under the control of the photometer, further changes might be noted. The use of thyroid, except possibly in rare cases, does not influence the nerve changes. Its effect probably is to help in the general metabolic processes. The lowered basal rates in many instances are related to nutritional deficiencies. Cody's finding of a whitish edema in his animals on a vitamin B deficiency diet, and as seen in human beings with the pharyngoscope, appears to be somewhat conclusive as to vitamin B deficiency. No interpretation can be made regarding the finding of high tone deafness in the linear type of body build.

Annals of Surgery, Philadelphia

105: 481-640 (April) 1937

- Surgery in Patients of Advanced Age. B. Brooks, Nashville, Tenn.—p. 481.
- Subphrenic Abscess with Bronchial Fistula. J. D. Steele Jr., Ann Arbor, Mich.—p. 496.
- Drainage of Abdominal Cavity in Operations for Perforated Peptic Ulcer. E. L. Eliason and J. P. North, Philadelphia.—p. 507.
- Multiple Polyposis of Colon: Familial Disease. R. H. Miller and R. H. Sweet, Boston.—p. 511.
- Evaluation of Abdominal Symptoms in the Diabetic. F. A. Bothe and J. T. Beardwood Jr., Philadelphia.—p. 516.
- Sarcoma of the Kidney in Adults. E. R. Mintz, Boston.—p. 521.
- Pyo-Umbilicus Associated with Umbilical Concretions. N. F. Hicken and R. R. Best, Omaha.—p. 539.
- Femoral Hernia in the Male. C. L. Wilmoth, Denver.—p. 549.
- *Cervical Rib and Scalenus Anticus Syndrome. W. M. Craig and P. A. Knepper, Rochester, Minn.—p. 556.
- Fibrous Osteoma of the Jaws. D. B. Phemister and K. S. Grimson, Chicago.—p. 564.
- Fracture of Femur in Children. G. M. Dorrance, Philadelphia.—p. 584.
- *Ganglions and Synovial Cysts: Their Pathogenesis and Treatment. D. R. Jensen, New York.—p. 592.
- Twenty Years' Experience with Citrate Method of Blood Transfusion. R. Lewisohn, New York.—p. 602.
- Fatty Acid Solutions for Injection Treatment of Varicose Veins. H. I. Biegeleisen, New York.—p. 610.
- *Vitamin C Deficiency and Wound Healing: Experimental and Clinical Study. T. H. Lanman and T. H. Ingalls, Boston.—p. 616.

Cervical Rib and Scalenus Anticus Syndrome.—In order to emphasize some of the points in the differential diagnosis, the surgical indications and results of cervical ribs, Craig and Knepper report six cases. The clinical picture of cervical ribs and that of the scalenus anticus syndrome are similar, as are also the surgical indications and operation. The symptoms result from compression or irritation of the brachial plexus and compression of the subclavian artery. Compression may

be due to the presence of cervical rib, an abnormally low position of the shoulder, high fixation of the sternum and ribs, low origin of the brachial plexus or elevation of the first thoracic rib from spasm of the scalene muscles brought about by irritation of the brachial plexus. When cervical ribs cannot be demonstrated, resection of the scalenus anticus muscle is usually all that is necessary to relieve the symptoms. In the presence of a cervical rib without tendinous attachments and without obvious pressure from behind, resection of the scalenus anticus muscle is all that is necessary, but when there is evident pressure from the cervical rib or its tendinous attachment, resection of the rib and the attachment should be carried out. In carefully selected cases in which the symptoms point clearly to either cervical rib or the scalenus anticus syndrome, the surgical result is usually excellent.

Ganglions and Synovial Cysts.—With no sharp line of demarcation between them, Jensen classifies the cases into two general groups. Twenty-one cases from the records of the Knickerbocker and New York hospitals fall into the group of simple cystomas. Except for the presence of the cyst, they have few clinical symptoms to distinguish them. The age limit shows wide variation: The youngest in this series was 4 and the oldest 67 years of age, with the largest number appearing in the third decade. The duration of the cyst varied from six months to two years. The patients sought treatment because of the unsightly appearance, and a few because of fear of malignancy. In a second group, comprising twenty-three cases from the records of the New York Hospital, there were present, in addition to the cyst, signs of further involvement of the tissues as indicated by the frequency of pain and limitation of motion. With the exception of one case, the latter sign was present in all the cases of this group. The degree of limitation varied; at times it was so slight as not to be obvious to the patient and at other times it was rather pronounced. The clinical history in all was similar, as were the physical signs. A "doughy feel" or crepitus of "rice bodies" has been described as characteristic of a tuberculous process. "Rice bodies" can be present without evidence of tuberculosis. In this group no such clinical sign was noted. Yet a few presented an advanced tuberculous process when the tissue was examined; therefore it is important that the examiner should not wait for these two signs before a clinical diagnosis of tuberculosis is made and radical measures are instituted. The various theories on the origin of ganglionic and synovial cysts are presented, with a comparatively new one restated: namely, that they have their origin in embryologic arrests in the process of the development of the periarticular tissue and synovial membranes. When a cyst is present with pain and limitation of motion, however slight, early operation is indicated because the underlying pathologic condition is usually chronic inflammatory or tuberculous in character. Operation and complete excision of all involved tissue result in the highest percentage of cures. A certain percentage of failures occur even after the most careful dissection, but the number can be reduced by early and complete excision of all diseased tissue.

Vitamin C Deficiency and Wound Healing.—According to Lanman and Ingalls, guinea-pigs were partially depleted of their cevitamic acid depot and were subsequently maintained on approximately one fifth of the minimal protective daily dose of cevitamic acid. The healing of the operative incisions of these animals, both histologically and physiologically, was inferior to that of a group of control animals. A normal wound is believed to attain the greater part of its final strength within the first ten days after operation, but the partially scorbutic animals had greatly inferior tensile strength, when compared to their controls, ten, twenty and thirty days post-operatively. The abdominal wounds of the scorbutic group ruptured at a pressure averaging approximately one-third that required to rupture the wounds of the normal animals. The scar tissue in these wounds was distinctly abnormal, being livid and soft in consistency. Microscopic study of the wounds in the partially scorbutic group showed defective repair of the corium, and a poor production of collagen in the scar. A clinical case is cited in which the presence of asymptomatic scurvy is thought to have been a factor in the failure of an

operative wound to heal. There may exist in human beings a degree of vitamin C deficiency that cannot be recognized by methods ordinarily used in physical examination. It has been proved, histologically and chemically, that asymptomatic scurvy is far more common in infants and children than has been realized. Its existence in older patients, though not yet proved, undoubtedly occurs. When a low cevitamic acid depot in a patient is found or suspected, the giving of cevitamic acid, as an aid to wound healing, seems amply justified.

Archives of Dermatology and Syphilology, Chicago

35: 563-766 (April) 1937

- Late Prenatal Syphilis, with Especial Reference to Interstitial Keratitis: Its Prevention and Treatment. H. N. Cole, Cleveland; Lida J. Usilton, Washington, D. C.; J. E. Moore, Baltimore; P. A. O'Leary, Rochester, Minn.; J. H. Stokes, Philadelphia; U. J. Wile, Ann Arbor, Mich.; T. Parran Jr. and R. A. Vonderlehr, Washington, D. C.—p. 563.
- Syphilotoxemia in the New-Born. F. W. Cregor and J. E. Dalton, Indianapolis.—p. 580.
- *Arsphenamine Dermatitis: Paralytic Ileus and Perforation of Intestine After Treatment with Arsphenamine. C. C. Dennie, Kansas City, Mo., and E. S. Miller, Kansas City, Kan.—p. 591.
- Treatment of Scabies with So-Called Danish Method. A. M. Greenwood and Margaret Reilly, Boston.—p. 602.
- *Arsphenamine-Resistant Syphilis. E. W. Netherton, Cleveland.—p. 607.
- Adenomatoid Sebaceous Tumors, with Particular Reference to Adenomatoid Hyperplasia. R. L. Gilman, Philadelphia.—p. 633.
- Carcinoma of Breast with Peculiar Cutaneous Metastases: Report of Case. C. D. Freeman and F. W. Lynch, St. Paul.—p. 643.
- Pseudoxanthoma Elasticum: Proof of Calcification of Elastic Tissue; Occurrence With and Without Angioid Streaks of Retina. C. W. Finnerud, Chicago, and R. Nomland, Iowa City.—p. 653.
- Besnier-Boeck's Disease: Report of Two Cases of Extensive Involvement. J. W. Jordon and E. D. Osborne, Buffalo.—p. 663.
- LXXXVII. Early Acute Lupus Erythematosus. M. F. Engman Jr., St. Louis.—p. 685.
- Histopathology of Various Types of Cutaneous Tuberculosis. H. Montgomery, Rochester, Minn.—p. 698.

Dermatitis, Paralytic Ileus and Intestinal Perforation After Arsphenamine.—Dennie and Miller report two cases of arsphenamine dermatitis, in one of which death was due to adynamic paralytic ileus with perforation of the large intestine with resultant peritonitis. They believe that the perforation of the intestine was due primarily to involvement of the vessels of the intestinal wall. Hemorrhages in the lining of the stomach and intestine are not uncommon. It is believed that the neoarsphenamine or some of its side-products injured the blood vessels to such an extent that they were thrombosed, and localized necrosis of the intestinal wall resulted. In addition, there might have occurred a paradoxical therapeutic result of such intensity that the endothelium, in response to the physiologic stimulation, left the walls of the blood vessels so rapidly that they were either ruptured or closed with resultant localized necrosis. The latter view is based on the assumption that the endothelial lining of blood vessels is a part of the reticulo-endothelial system—a part of the defense mechanism. Both patients had an adynamic paralytic ileus. Whether the ileus preceded the perforation of the intestine is a debatable question.

Arsphenamine-Resistant Syphilis.—Netherton cites two instances of conjugal syphilis of the early type in each of which only the wife showed drug resistance. In one case the infection was resistant to the arsenicals and to bismuth and mercury compounds, while in the other the infection was resistant to the three most commonly used arsenicals. A resistance to both arsenic and the heavy metals tends to invalidate the theory of an arsphenamine-resistant strain of *Spirochaeta pallida*. In each case spirochetes were present in the cutaneous lesions several weeks after antisyphilitic therapy had been instituted. The observation of Moore and Robinson, Jessner and others that persons with arsenoresistant syphilis usually tolerate arsphenamine poorly and frequently exhibit psoriasiform lesions is well exemplified by the two cases reported. The drug resistance in only one of the marital partners cannot be explained on the basis of an arsphenamine-resistant strain of *Spirochaeta pallida* or as a result of a decrease in the spirocheticidal activity of the drug which was administered. The host must be incriminated. In one case the resistance of the infection to arsphenamine, bismuth and mercury disappeared after malarial therapy. This beneficial effect of fever therapy presumably arose from the decrease in vitality of the spirochetes by direct action of heat, the stimulation of the body

defense mechanism of the patients and an increase in metabolism incident to fever, which may have produced alterations within the host, thus facilitating the action of arsphenamine subsequently observed.

Illinois Medical Journal, Chicago

71: 277-364 (April) 1937

- Some Unusual Features of Lung Cancer. C. M. Jack, Decatur.—p. 315.
Radium Treatment of Secondary Parotitis. F. H. Decker, Peoria.—p. 319.
Chronic Sinusitis in Children. J. R. Lindsay, Chicago.—p. 323.
Treatment of Meningococcic Meningitis with Meningococcus Antitoxin. W. H. Tucker, Springfield.—p. 328.
Acute Appendicitis. M. S. Underhill, Evanston.—p. 331.
*Treatment of Petrositis: Report of Three Cases. J. C. Beck and M. R. Guttman, Chicago.—p. 333.
Rôle of Emotions in Gastrointestinal Ulcers. S. C. Robinson, Chicago.—p. 338.
Negative Tuberculin Reactors: Observations and Notations. J. Ritter, Miami, Fla.—p. 347.
Experimental Influenza. H. Macdonald and E. J. Macdonald, Evanston.—p. 350.
Subacute Polymyositis: Report of Case. E. H. Warszewski and J. M. Radzinski, Chicago.—p. 351.
Tuberculosis Control in Our Educational Institutions by Tuberculin X-Ray Plan. E. A. Thacker, Urbana.—p. 354.

Treatment of Petrositis.—Beck and Guttman assert that not all cases of petrosal involvement require surgery. It is conceivable that the petrous tip may be but mildly involved in the pathologic process, and it has probably been the experience of most otologists that many of their patients with mastoiditis with pain in and about the eye have recovered without a petrous operation. Myerson states that about 80 per cent may recover with conservative management. While no hard and fast rule can be drawn, conservative management seems to be indicated only in those cases in which the pain is mild and decreasing in intensity, in which the temperature is normal or slightly elevated, in which the discharge has not ceased abruptly, and in which the roentgen observations show either a normal or slightly involved petrous tip. On the other hand, pain increasing in intensity, especially if it is nocturnal and interferes with sleep, an increasing temperature, a sudden cessation of the discharge, positive roentgen observations and signs of sepsis or meningeal irritation all point to an immediate evacuation of the petrous tip as a means of preventing further progression of the purulent process toward the cranial cavity with the possible production of a fatal complication. The danger lies not in the operation but in the delay, during which meningitis, brain abscess or cavernous thrombosis may supervene.

Journal of Biological Chemistry, Baltimore

118: 1-320 (March) 1937. Partial Index

- Lipid and Mineral Distribution in Serum and Erythrocytes of Normal Children. Betty Nims Erickson, H. H. Williams, Frances Cope Hummel and Icie G. Macy, Detroit.—p. 15.
Serologically Inactive Polysaccharide Elaborated by Muroid Strains of Group A Hemolytic Streptococcus. F. E. Kendall, M. Heidelberger and M. H. Dawson, New York.—p. 61.
Specific and Nonspecific Cell Polysaccharides of a Human Strain of Tubercle Bacillus, H-37. M. Heidelberger and A. E. O. Menzel, New York.—p. 79.
Cystine Content of Insulin. Gail Lorenz Miller and V. du Vigneaud, Washington, D. C.—p. 101.
Colorimetric Estimation of Guanidine-like Substances in Urine. J. E. Andes and V. C. Myers, Cleveland.—p. 137.
Amino Acids in Staple Foods: I. Wheat (*Triticum Vulgare*). F. A. Csonka, Washington, D. C.—p. 147.
Metabolism of Carbohydrate in Depancreatized Dog. S. B. Barker, W. H. Chambers and Margaret Dann, New York.—p. 177.
Exchange of Salt and Water Between Muscle and Blood: II. Effect of Respiratory Alkalosis and Acidosis Induced by Overbreathing and Rebreathing. Lillian Eichelberger and A. B. Hastings, with technical assistance of Natalia Tupikova, Chicago.—p. 197.
Id.: III. Effect of Dehydration. Lillian Eichelberger and A. B. Hastings, Chicago.—p. 205.
Studies on Oxidation-Reduction: XXIII. Ascorbic Acid. E. G. Ball, Baltimore.—p. 219.
Comparison of Methods of Extraction of Lactogenic Hormone. A. J. Bergman and C. W. Turner, Columbia, Mo.—p. 247.
Fractionation of Vitamin B₂ Complex from Various Source Materials. Nellie Halliday and H. M. Evans, Berkeley, Calif.—p. 255.
Distribution of Bases Between Cells and Serum of Normal Human Blood. Pauline M. Hald and Anna J. Eisenman, New Haven, Conn.—p. 275.
Osmotic Adjustments Between Cells and Serum in Circulating Blood of Man. Anna J. Eisenman, Pauline M. Hald and J. P. Peters, New Haven, Conn.—p. 289.

Journal of Experimental Medicine, New York

65: 469-612 (April) 1937

- Distribution in Blood and Lymph of Pneumococcus Type III Injected Intravenously in Rabbits, and Effect of Treatment with Specific Antiserum on Infection of Lymph. Madeleine E. Field, M. F. Shaffer, J. F. Enders and C. K. Drinker, Boston.—p. 469.
Quantitative Study of Cross Reaction of Types III and VIII Pneumococci in Horse and Rabbit Antisera. M. Heidelberger, E. A. Kabat and D. L. Shrivastava, New York.—p. 487.
*Reinfection (Second Attack) in Experimental Poliomyelitis. S. Flexner, New York.—p. 497.
Culture of Whole Organs: I. Technic of Culture of Thyroid Gland. A. Carrel, New York.—p. 515.
Experimental Nephritis in Rats Induced by Injection of Antikidney Serum: II. Clinical and Functional Studies. J. E. Smadel and L. E. Farr, New York.—p. 527.
Id.: III. Pathologic Studies of Acute and Chronic Disease. J. E. Smadel, New York.—p. 541.
Id.: IV. Prevention of Injurious Effects of Nephrotoxin in Vivo by Kidney Extract. H. F. Swift and J. E. Smadel, New York.—p. 557.
Improved Air-Driven Type of Ultracentrifuge for Molecular Sedimentation. J. H. Bauer and E. G. Pickels, New York.—p. 565.
Tissue Culture Studies on Bacterial Hypersensitivity: IV. Protective Effect of Immune Plasma Against Deleterious Influence of Streptococcus Extract on Hypersensitive Cells. J. K. Moen, New York.—p. 587.
Studies on Serologic Typing of Streptococcus Haemolyticus. Ruth H. Pauli and A. F. Coburn, with assistance of Florence Stone, New York.—p. 595.

Reinfection in Experimental Poliomyelitis.—Flexner finds that monkeys which have recovered from an attack of experimental poliomyelitis are subject to reinfection by the nasal route. Second attacks of the disease result from inoculation with the specimen of virus used to produce the first attack and with specimens of different origin. Reinfection takes place in monkeys that have recovered from mild and from severe attacks and in convalescent animals that have been subjected to hyperimmunization. The quiescent period of two years proposed by Still to separate relapses from second attacks, judging from the monkey, is probably excessive. Until greater attention is given the reinfections of varying intensities in man, conclusions on this point must be wholly tentative.

Journal of Immunology, Baltimore

32: 171-270 (March) 1937

- "Normal Antibody" in Monkey Serum. M. Weichsel and H. Salfeld, New York.—p. 171.
Studies on Serum Fractions: I. Antisera Prepared by Immunizing Rabbits with Specific Precipitates of Pneumococcus S. S. S. and with Flocculi of Diphtheria-Toxoid-Antitoxin. K. Ando, R. Kee and T. Komiyama, Dairen, Manchuria.—p. 181.
Influence of Narcotics on Anaphylactic Shock. L. Farmer, New York.—p. 195.
Analyses of Composite Antigens by Schultz-Dale Technic: Further Experimental Analyses of Trichophytins. W. Jadassohn, F. Schaaf and G. Wohler, Zurich, Switzerland.—p. 203.
Group Specific Differentiation of Human Feces, with Especial Regard to the AB Group. I. Moharram, Cairo, Egypt.—p. 229.
*Studies in Experimental Hypersensitiveness in Rhesus Monkey: I. Active Sensitization with Poison Ivy. H. W. Straus, New York.—p. 241.
*Id.: II. Passive Local Cutaneous Sensitization with Human Reaginic Serums. H. W. Straus, New York.—p. 251.

Active Sensitization with Poison Ivy.—Straus has artificially sensitized rhesus monkeys to poison ivy. Such sensitized animals have been shown also to be specifically sensitive to poison oak. This not only demonstrates the common antigenic principle in the two substances but confirms the specific nature of the cutaneous reactions obtained. Sensitivity lasts at least eight months. For experiments in contact dermatitis the rhesus monkey presents advantages over other laboratory animals because it is more closely related to man and because, as judged by these experiments, his reactions closely simulate those observed previously in infants. Further investigations, which are impracticable in man, are made possible by the use of the rhesus monkey.

Passive Local Cutaneous Sensitization with Human Reaginic Serums.—Straus finds that locally the skins of rhesus monkeys can be sensitized passively with a majority of human reaginic serums of high titer. This property was heretofore considered peculiar to the human skin exclusively. The reaction that develops at the passively sensitized site consists almost entirely of edema and is not, as a rule, associated with erythema or pruritus. Many phenomena associated with passive local sensitization in man can be reproduced in monkeys. The specific nature of this local cutaneous sensitization with human reaginic serums has been clearly demonstrated.

Journal of Infectious Diseases, Chicago

60: 129-256 (March-April) 1937

- Further Advances in Study of Microbic Dissociation. P. Hadley, Pittsburgh.—p. 129.
- Vitamin A Deficiency in Rhesus Monkey: Studies on Gastro-Intestinal Tract, Blood and Nervous Symptoms. Elizabeth Verder and Elizabeth Petran, Chicago.—p. 193.
- Effect of Lecithin on Streptococci and Staphylococci Hemolysin. L. Weinstein, New Haven, Conn.—p. 209.
- Comparison of Meningeal and Other Strains of Haemophilus Influenzae. Dorothy Wilkes-Weiss, St. Louis.—p. 213.
- Further Studies on Bacillus Difficilis (Hall and O'Toole). M. L. Snyder, Denver.—p. 223.
- Use of Cutaneous Staphylococcus Lesions in Mice for Evaluation of Germicidal Activity of Disinfectants. G. A. Hunt, St. Louis.—p. 232.
- Study of Some of the Properties of Toxic Substances Produced by Salmonella Paratyphi A and B. Ruth E. Gordon and C. N. Stark, Ithaca, N. Y.—p. 238.
- Epizootic Septicemia of Young Guinea-Pigs Caused by Pseudomonas Caviae, n. sp. M. Scherago, Lexington, Ky.—p. 245.
- *Bacteriologic Study of Forty Cases of Dysentery in Infants and Children, Including Two Cases of Flexner Bacillus Septicemia. Edith Haynes, Indianapolis.—p. 251.

Bacteriologic Study of Dysentery.—Haynes made bacteriologic studies of forty cases of dysentery. Eighty-four specimens, obtained by swabbing the mucosa during proctoscopic examination, were cultured and seventy-eight of them were examined microscopically for protozoa. Twenty-six stool specimens from these patients were cultured and two blood cultures made. The Flexner bacillus was obtained from thirteen cases, including two from which this organism was obtained in blood culture. It seems that the dysentery bacillus can enter the blood stream, but the frequency or time of its appearance there is not yet known. The Sonne dysentery bacillus was isolated from five cases; a bacillus obtained from a sixth case, which unfortunately was not completely studied, probably was also a Sonne bacillus. Sonne dysentery is probably endemic throughout this country, but because the disease is usually mild and because of the difficulty in recognizing the organism, cases are not reported frequently. It seems probable that adult carriers of this organism may be quite common and that some of the mild food infections may be caused by the Sonne bacillus. Unless a titer of well over 1:100 is obtained, the agglutination reaction is of doubtful value for diagnosis, as agglutinins may be present in lower titers in the blood for some time after the disease and negative agglutination tests do not exclude the disease.

Medical Bull. of Veterans' Adm., Washington, D. C.

13: 297-398 (April) 1937

- Calcification of Pericardium. C. G. Lyons and G. A. Wiltrakis.—p. 297.
- Skeletal Metastasis in Teratoma of Testicle: Two Cases. S. K. Livingston.—p. 301.
- Teratoma of Testicle, with Widespread Metastasis. W. C. Nalty.—p. 304.
- Method of Hospital Management of Diabetes. H. Freed, in collaboration with Harriett E. Sedgwick.—p. 307.
- *Diagnostic Problems of Acute Surgical Conditions of the Abdomen in Psychotic Patients. C. Lewis.—p. 314.
- Infection of Hands and Fingers. D. N. Monserrate.—p. 321.
- Extrapulmonary Tuberculosis, with Consideration of Certain of Its Manifestations. W. A. Loeb.—p. 327.
- Therapeutic Approach in Mental Disorders Through Physical Therapy. L. E. Scharf.—p. 338.
- Habit Training of Psychotic Patients. F. C. Robbins.—p. 343.
- Preponderant Symptoms of Hysteria. M. F. Segal.—p. 346.
- Neuropathic Ulcers of the Mouth. W. J. Baker.—p. 349.
- Professional Ethics in Hospital Practice. C. P. Harrod.—p. 351.
- Annual Inventory of Personal Accomplishments. L. G. Beardsley.—p. 354.
- Wildlife Sanctuaries as Conservators of Health. F. E. Leslie.—p. 356.
- Bibliotherapy—Study in Results of Hospital Library Service. Elizabeth Pomeroy.—p. 360.

Acute Surgical Conditions of Abdomen in Psychotic Patients.—Lewis states that psychotic patients should be observed closely for any abnormality in their behavior which may suggest an acute illness. Many of them do not make any complaints or give any subjective symptoms when suffering from an acute surgical condition of the abdomen, and it is by some abnormality in their behavior that the illness is first detected. Frequently these patients exhibit no abnormality in behavior until several days after the onset of the disability, and therefore the pathologic changes are quite extensive when the illness is detected. The clinical picture presented is often

not typical of any specific disease but only suggestive of an acute surgical condition of the abdomen. There should be no hesitancy in resorting to exploratory surgery rather than to wait for a positive diagnosis. Frequently, when the changes are sufficient to make a positive diagnosis, the disease is so far advanced that the prognosis for recovery with the proper surgical treatment is unfavorable.

Military Surgeon, Washington, D. C.

80: 171-250 (March) 1937

- Importance of Coordinating Military and Naval Medical Services with Civilian Medical Profession. H. G. Armstrong.—p. 171.
- Seronegative Syphilis. J. A. Millsbaugh.—p. 182.
- Medical and Dental Liaison in Our Military Forces. L. C. Fairbank.—p. 185.
- Chapters and Their Relation to Association. A. G. Hulett.—p. 188.
- Intravenous Drip: Review of Literature and Technic of This Method of Fluid Administration. H. B. Porter.—p. 192.
- Management of Dysenteries in Tropics. R. B. Skinner.—p. 201.
- Shadows Cast by Coming Events. A Casual Observer.—p. 205.
- Pioneering in the Medical Reserve Corps. H. S. Baketel.—p. 210.
- Some Medicomilitary Observations Concerning Malaria. J. V. Falisi.—p. 216.
- Acute Arterial Mesenteric Intravascular Occlusion. S. W. Matthews.—p. 223.

New York State Journal of Medicine, New York

37: 633-718 (April 1) 1937

- Nutritional Reviews I: Protein Requirements. H. Pollack and H. Dolger, New York.—p. 633.
- *Diabetes Mellitus: Factors Influencing Cause, Course and Complications: Analysis of Eighty-Eight Cases. Esther Tuttle, New York.—p. 636.
- Pendulous and Hypertrophied Breasts: Operative Treatment. C. F. Dowkontt, New York.—p. 643.
- Surgical Treatment of Empyema. K. Creevey, Cambridge.—p. 645.
- Cancer of Rectum, with Acute Lead Poisoning (Industrial). I. Gray and I. Greenfield, Brooklyn.—p. 649.
- Milk Digestion: Mechanism and Modification. I. N. Kugelmass, New York.—p. 652.
- Troubled Writers: Note on Psychopathology of Literature. L. J. Bragman, Binghamton.—p. 657.
- Congenital Syphilis in One of Identical Twins: Report of Case. O. J. McKendree, Utica.—p. 659.

Diabetes Mellitus.—Tuttle states that heredity appears as a factor in the incidence of diabetes mellitus. In the group studied, 33.3 per cent definitely showed hereditary origin; 35.7 per cent showed no indication of hereditary origin, while 31 per cent were unknown. Of the last group, many of the children were of foreign birth, who knew little about their antecedents, and it is therefore safe to assume that in many of these cases the question of heredity would be definite. It is now the accepted theory that hereditary diabetes follows the mendelian recessive pattern. Thus it would follow that for proper control diabetic children should be trained to marry into pure nondiabetic families. More advanced and recent studies of diabetes lead one to concur that diabetes is a disease of metabolism not only involving chemical abnormalities of the body fluids but also including disturbances of the glands of internal secretion, which affect the metabolic processes and disorders of nutrition. Since the metabolism of carbohydrates is in some way dependent on the function of the anterior lobe of the pituitary body and since in the menopause there is malfunction of the pituitary, it becomes more apparent that the menopause can contribute to the cause of diabetes mellitus, particularly in those who by inherited tendencies are potentially diabetic. The preponderance of females among the obese is another indicative factor. Disturbances due either to pregnancy or to gallbladder disease may be contributory causes of diabetes. There is apparently some important relation between glycosuria of long duration and the degree of arterial change as demonstrated by electrocardiographic observations, oscillographic readings and fundus examination. It would seem that the important factor lies in the prolonged and continued loss of sugar with its polyuria resulting in dehydration rather than in the amount of sugar lost at any one time. There is evidence that a diseased heart requires more carbohydrate than a normal heart. Hence lowering the blood sugar by rigid diet or insulin, or both, may aggravate the cardiac condition. The indiscriminate use of insulin, especially in the older diabetic patient with arteriosclerosis, is fraught with danger. The repeated hypoglycemic reactions caused by frequent insulin reactions in an apparently normal heart lead to physiologic imbalance and the

development of myocardial damage through changes in the intima of the arteries. It has been observed since the introduction of insulin that with more rigorous treatment of the diabetic patient the cardiac manifestations may become more severe instead of improved. High blood sugar values are often more benign in elderly diabetic patients with cardiovascular disease and it is best to undertreat them, especially if there is a history of coronary artery disturbance. Vascular diseases play a prominent part in the complications resulting from diabetes mellitus. Most of the patients in the present series having the disease for a number of years showed disturbances of the vascular system to a varied degree. Sixty-five patients, or 73.8 per cent, showed vascular disturbances. Joslin favors the theory that the usual increase in cholesterol in the diabetic patient's blood is responsible for the vascular change. Aschoff also believes that an increased amount of cholesterol in the blood is one of the prerequisites for arteriosclerosis.

Northwest Medicine, Seattle

36:73-110 (March) 1937

- Coronary Sclerosis: Electrocardiographic Study of 100 Autopsied Cases. G. F. Strong and M. R. Caverhill, Vancouver, B. C.—p. 73.
- Treatment of Auricular Fibrillation and Auricular Flutter. I. C. Brill, Portland, Ore.—p. 79.
- Carcinoma of Colon and Rectum: Practical Surgery of Large Bowel. G. K. Rhodes, San Francisco.—p. 83.
- Care of Proctectomy Wounds. R. D. Forbes and J. Duncan, Seattle.—p. 88.
- Modern Aspects of Pneumoconiosis Problem as Related to Industry. G. E. Hein, San Francisco.—p. 89.
- Early Diagnosis of Carcinoma of Cervix Uteri. F. H. Falls, Chicago.—p. 93.
- Hydrochloric Acid Therapy. F. L. Wood, Lynden, Wash.—p. 96.
- Blood in Lead Poisoning. T. E. P. Gocher, San Francisco.—p. 98.

Review of Gastroenterology, New York

4:1-76 (March) 1937

- Plan for Prevention of Liver and Gallbladder Diseases. B. B. V. Lyon, Philadelphia.—p. 1.
- *Cholesterol Metabolism and Liver Disorders. E. Z. Epstein, New York.—p. 12.
- Further Report on Intensified Oral Cholecystography. W. H. Stewart and H. E. Illick, New York.—p. 20.
- Discussion of Value of Esophagoscopy and Gastroscopic Examinations. E. B. Freeman, Baltimore.—p. 21.
- Hypermotility of Small Intestine with Impaired Fat Digestion. D. Adlersberg, New York.—p. 28.
- Constipation: Clinical and Roentgenologic Study. S. W. Johnsen, Passaic, N. J.—p. 30.
- Clinical Experiences with Buffer That Normalizes Hydrogen Ion Concentration of Stomach. G. Laszlo, Budapest, Hungary.—p. 35.

Cholesterol Metabolism and Liver Disorders.—Epstein has found the study of the blood cholesterol partition a valuable adjunct to the clinical armamentarium in the differentiation of jaundice. The single determination will often mislead, since variations may occur depending on the time that elapses between the onset of the disease process and its study by the clinician. In a determination requiring so little blood, repeated studies are easily carried out. In obstructive jaundice a hypercholesterolemia is usually encountered, both of the free and of the ester fractions, which parallels the degree of hyperbilirubinemia. With relief of the obstruction and lessening of the jaundice, the cholesterol gradually returns to normal. This rise may not occur in long standing biliary stasis, superimposed infections of the biliary passages, cachexia and other complications. In jaundice occurring in acute hepatic degeneration, the blood cholesterol does not rise parallel to the bilirubin but usually remains at a normal or subnormal level. In severe cases, especially yellow atrophy, the blood cholesterol may be markedly depressed. This divergence between the degree of the blood cholesterol and bilirubin in hepatic diseases contrasts sharply with the parallelism between the hypercholesterolemia and hyperbilirubinemia in obstructive jaundice. The cholesterol esters are usually lowered in acute liver degeneration. The blood cholesterol partition remains normal in atrophic cirrhosis of the liver (Laënnec), except when jaundice occurs in the course of an intercurrent acute hepatic degeneration or terminal cholemia. In these instances the blood cholesterol partition behaves as in primary acute hepatic degeneration. In cholecystitis and cholelithiasis with no obstruction and no complicating infections of the biliary passages, the blood cholesterol figures are not significantly altered.

Surgery, St. Louis

1:323-486 (March) 1937

- *Relation of Spread of Infection to Fascial Planes in Neck and Thorax. F. A. Coller and L. Yglesias, Ann Arbor, Mich.—p. 323.
- Aseptic Technic Applicable to Gastrojejunocolic Fistula. A. W. Allen, Boston.—p. 338.
- Spontaneous Internal Biliary Fistula and Gallstone Obstruction, with Particular Reference to Roentgenologic Diagnosis. C. N. Borman and L. G. Rigler, Minneapolis.—p. 349.
- Postoperative Wound Infections and Use of Silk: Experimental Study. P. Shambaugh, Chicago, and J. E. Dunphy, Boston.—p. 379.
- *Pneumococcic Peritonitis. W. H. Cole, Chicago.—p. 386.
- Disappearance of Gallstone Shadows Following Prolonged Administration of Bile Salts. A. G. Rewbridge, Minneapolis.—p. 395.
- Treatment of Osteomyelitis of Cranial Vault. J. E. J. King, New York.—p. 401.
- Physiologic Effects Produced by Ablation of Autonomic Central Influence: Various Forms of Sympathectomy in Treatment of Diseases. A. W. Adson, Rochester, Minn.—p. 425.

Relation of Spread of Infection to Fascial Planes in Neck.—Coller and Yglesias describe the three spaces (the space for the body of the mandible, the masticator space and the parotid space), lying between muscular fascial planes, that are limited by bony attachments above in the face and below to the thoracic cage. Infections in these are infrequent and are limited sharply to the neck. Between these spaces and the prevertebral muscular fascia lies a large viscerovascular system of fascia in which there are four definite fascial compartments and a vascular sheath. The lateral pharyngeal space is a receiving station for infections arising from fascial spaces in the face and pharynx, from which infection in turn may pass to all other compartments of the viscerovascular system. Two other compartments, the pretracheal and the retrovisceral, pass directly into the thorax. Infections passing along the sheath of the vessels will likewise pass directly to the thorax. The mediastinum may be very simply divided into compartments. Immediately behind the sternum is the space commonly called the anterior mediastinum; that is, a retrosternal space occupied by a few lymphatic glands, fat and areolar tissue. It is bounded posteriorly by the pleurae and the fascia connecting them. It is of surgical importance only in association with trauma and infection arising in the sternum. Posterior to this in its upper portion lie the thymus and the innominate veins with their fascial covering walling off the upper part of the retrosternal space from the neck. Behind this, between the pleura and the pericardium, lies the pleuro-pericardial space, which may be infected from the vascular sheath or from the pretracheal space. Posterior to this space are the ascending aorta and the arch of the aorta with their sheaths. Behind them lie the pretracheal space and just behind this the retrovisceral space, both of supreme importance because they are the major pathways for the entrance of infection to the thorax.

Pneumococcic Peritonitis.—Owing to the discrepancy of various features of pneumococcic peritonitis revealed in the literature, Cole studied the twenty-six cases that occurred in the St. Louis Children's Hospital during the last eighteen years, from which he deduces that the development of peritonitis secondary to infections such as those of the upper part of the respiratory tract is more common than any other mechanism in pathogenesis. He is of the opinion that the correct diagnosis can usually be made in differentiation from acute appendicitis, by noting such features as early development of fever, profuse vomiting, diffuse character of tenderness and pain and prevalence in girls. Diagnostic puncture of the abdomen is justifiable in children when diagnosis is uncertain and rarely fails to aid in the establishment of a correct diagnosis if the peritonitis is of pneumococcic origin. For many reasons immediate operation appears to be contraindicated. Although the present series is far too small to allow conclusions regarding this point, the results favor waiting until a localized abscess forms. If the child survives the acute stage of the disease, recovery is almost certain even though one or more localized abscesses form, provided, of course, such abscesses are properly drained. Pneumococcic peritonitis is a common complication of nephrosis. The mortality in these children was 54 per cent, as contrasted with 44 per cent in the previously healthy children.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 541-594 (March 13) 1937

- Protamine Insulin and Zinc Protamine Insulin in Treatment of Diabetes Mellitus. H. P. Himsworth.—p. 541.
 Nonsurgical Renal Emergencies: Postgraduate Lecture. J. M. Stalker.—p. 546.
 *Treatment of Aspirin Poisoning by Intravenous Sodium Lactate Solution. S. W. Williams and Rona M. Panting.—p. 550.
 Continuous Intravenous Saline Infusion. H. Bailey, W. I. B. Stringer and K. D. Keele.—p. 552.
 Climatophysiological Investigations at the Seashore. O. Kestner.—p. 555.

Acetylsalicylic Acid Poisoning.—Williams and Panting consider the pathologic and biochemical basis underlying the clinical manifestations of profound toxemia in acetylsalicylic acid poisoning and discuss its theories. In their two cases with recovery after the ingestion of 2 and 3.8 Gm. of the drug respectively, the weight of evidence seems to be in favor of the intoxication being possibly a toxic action on the respiratory center but chiefly due to an acidosis. This is borne out by the rapid improvement in the clinical condition that accompanied the rise in the alkali reserve following the administration of sodium lactate solution intravenously by the slow drip method. Odin (1932) warns one to be careful in using salicylate in nephritic patients. In two of his cases albumin was present in the urine before treatment was commenced, and both patients developed symptoms of poisoning with so small a dose as 45 grains (3 Gm.) a day. All his patients had a moderate number of red blood cells in the urine, five had albuminuria and two had some casts. This, considered with the postmortem observation of acute nephritis, indicates that it is difficult for nephritic patients to excrete salicylic acid.

East African Medical Journal, Nairobi

13: 331-362 (Feb.) 1937

- Postmortem Findings in Natives of Kenya. F. W. Vint.—p. 332.
 Pink Disease in Kenya. R. V. Bowles.—p. 340.
 Comparison of Two Methods of Skin Grafting. J. C. Carothers.—p. 345.
 Artificially Induced Lactation in Humans. P. J. Greenway.—p. 346.

Journal of State Medicine, London

45: 63-124 (Feb.) 1937

- Reproduction of Early Pulmonary Tuberculosis of Adult Type by Bronchogenic and Hematogenous Reinfection. W. Pagel.—p. 63.
 "Mutations" Occurring in Tubercle Bacillus on Culture. D. Haler.—p. 74.
 Facts and Theories About Stammering. H. S. J. Rumsey.—p. 81.
 Nutrition in Winter. V. H. Mottram.—p. 89.
 Prevention of Rheumatic Diseases. J. B. Mennell.—p. 92.
 Climate and the Nervous System. M. Critchley.—p. 98.
 Prevention of Pulmonary Disease. J. B. Alexander.—p. 102.
 Holidays in Winter. A. Cox.—p. 110.

Lancet, London

1: 493-548 (Feb. 27) 1937

- Tuberculosis in Relation to Life Assurance. O. May.—p. 493.
 Treatment of Imperfect Descent of Testis with Gonadotropic Hormones. T. W. Mims.—p. 497.
 Fourth or Apical Electrocardiograph: Lead: Reports of Three Cases of Coronary Thrombosis with Electrocardiograms. E. T. Freeman.—p. 499.
 Four-Lead Electrocardiogram in Coronary Disease. A. Willcox and J. L. Lovibond.—p. 501.
 Defensive Role of Bilirubinemia in Pneumococcal Infection. Najib-Farah.—p. 505.
 *Aneurysm of Sinus of Valsalva Involving Coronary Orifice. Norah H. Schuster.—p. 507.

Aneurysm of Sinus of Valsalva Involving Coronary Orifice.—The inclusion of the coronary orifice in Schuster's case of aneurysm made it difficult at first to be certain whether the dilatation had originated in the coronary artery or in the sinus of Valsalva, and it was only after the remains of the artery had been dissected that the diagnosis was established. These aneurysms give notoriously complicated physical signs and they are rarely diagnosed during life. In the present case the early roentgenographic reports were misleading, as they persistently suggested neoplasm despite the clinical evidence in favor of aneurysm. There was evidently a difference of opinion about the nature and interpretation of the pulsation.

The sudden onset of marked pulsation and severe dyspnea with but little cyanosis were the most striking features. The aneurysm obstructed the tricuspid valve and it was considered that the apical systolic and diastolic murmurs belonged to that valve. The early harsh systolic murmur seemed to originate in the pulmonary artery and might have been due to pressure. The specimen was undoubtedly syphilitic, with a good deal of atheroma as well; in appearance it was just like an advanced saccular aneurysm of the arch of the aorta. Its size was exceptional (double fist), most of the recorded cases having been about the size of a walnut, while some of them were mere pouches.

1: 549-612 (March 6) 1937

- Thrombo-Angiitis Obliterans. E. D. Telford.—p. 549.
 *Medical Treatment of Nonmalignant Pyloric Stenosis in Adults. T. I. Bennett.—p. 552.
 Review of Gold Therapy. W. S. C. Copeman and W. Tegner.—p. 554.
 *Striae Atrophicae Cutis. D. B. Rosenthal.—p. 557.
 Tryptophan Reaction in Cerebrospinal Fluid: Its Value in Diagnosis of Tuberculous Meningitis. J. Spillane.—p. 560.
 Anesthesia for Intracranial Operation: New Technic. P. Ayre.—p. 561.

Treatment of Nonmalignant Pyloric Stenosis.—Bennett explains the majority of the failures of medical treatment of pyloric stenosis by neglect to meet the requirements and habits of the individual patient. There is no other disease in which the personal factor is of more importance, and, if peptic ulcer is not treated more successfully in 1937 than it was in 1927, it is because many physicians and surgeons still continue to adopt a fixed system of treatment without realizing that, though it may be excellent, it must always require some measure of individual adjustment. An extreme illustration of this has been afforded by the transient popularity of the treatment of peptic ulcer by means of injections of histidine. Apart from ridiculous forms of treatment such as this, a proper proportion of successes cannot be secured unless each case is judged on its merits and the diet and medicine are arranged in each case so as to secure the measure of gastric rest necessary to bring about permanent healing and health. It is a mistake to assume that organic narrowing of the pyloric canal, even of high degree, must in all cases be treated surgically. Three cases are cited in which little or no vomiting occurred; this fact made it unnecessary to employ gastric lavage; the diet given in each case consisted of dextrose lemonade for a day or two, followed by diluted milky feeds, and proceeded to a semifluid diet for several weeks. The first and third patients were ultimately able to take a light diet differing little from that of other members of the household, but care was taken to avoid all foods calling for prolonged gastric digestion. The principal function of the stomach is to secure liquefaction of the food; recognition of this function enables one to classify the foods requiring prolonged gastric digestion with considerable exactitude; liquefaction does not connote solution, but the chyme is a thin fluid having the consistency of weak gruel. Success can seldom be achieved unless the patient with pyloric stenosis realizes that the diet he is given has been chosen in the not altogether optimistic hope of avoiding surgical operation.

Cutaneous Atrophic Striae.—Rosenthal presents four cases of cutaneous atrophic striae observed in young men suffering from pulmonary tuberculosis and mentions one case of macular atrophy. In none of the many cases of pleurisy with effusion that have come under his observation has linear atrophy been noted; and, further, in the cases reported, it was found impossible to correlate definitely the position of the patient in bed with either the distribution of the pulmonary lesion or the situation of the lineae. Posture in bed appears to be determined not only by the site of the disease in the lungs but also by subsidiary factors such as habit, inclination or immediate surroundings. The causes to be considered are maldevelopment (insufficiency of cutis, with deficiency of elasticity), rapid stretching (due to tumor, obesity, growth or pregnancy), endocrine dyscrasia (particularly pituitary abnormality) and toxic causes (tuberculosis, typhoid and cachectic states). From the embryology it is difficult to accept a deficiency of cutis as a primary factor, and probably the causation is multiple, the size and situation of the lineae being determined by external physical factors, together with purely local conditions in the skin that determine the lines of cleavage. Pulmonary tuberculosis,

being a disease that preeminently attacks young people at or about the growth period, involves treatment that favors the development of striae; i. e., prolonged rest. The tuberculous element plays little if any part in their causation.

Practitioner, London

138: 225-336 (March) 1937

- Postoperative Care: Medical Aspects. A. P. Thomson.—p. 225.
Id.: Surgical Aspects. J. R. Learmonth.—p. 236.
Id.: Anesthetic Aspects. I. W. Magill.—p. 247.
Nervous and Mental Postoperative Complications. A. Feiling.—p. 259.
Physiotherapy in Postoperative Convalescence. J. Mennell.—p. 269.
*Bedsore and Their Treatment. R. J. M. Love.—p. 277.
Catheters, and the Avoidance of Sepsis. W. I. de C. Wheeler.—p. 284.
Treatment of Seasickness. J. Hill.—p. 297.
Treatment of Epilepsy in Children. R. Lightwood.—p. 307.
Knee Jerk in Health and Disease. A. Abrahams.—p. 313.
General Practice: IX. Litigation. R. Forbes.—p. 317.

Treatment of Bedsore.—Love states that in the first stage of bedsore, or threatened bedsore, erythema of the skin, which disappears on pressure, is the earliest indication. At this stage moist dressings or ointments are contraindicated, and reliance is placed on prophylactic measures, combined with some preparation that will harden the skin if it is unduly soft. The application of 5 per cent silver nitrate in distilled water is useful or, alternatively, a solution of 30 grains (2 Gm.) of alum, 250 cc. of water and 250 cc. of alcohol, applied several times a day. Another efficacious preparation is equal parts of tincture of catechu and solution of lead subacetate. If the skin is harsh or dry, some protective covering may prevent the development of a threatened bedsore. If small areas are affected, several layers of flexible collodion painted over the surface may prevent the dry skin from cracking. In the second stage, or the inevitable bedsore, ulceration is imminent when redness and congestion appear and are unaffected by pressure. The best form of local treatment is the tannic acid spray utilized as for burns. A freshly prepared 5 per cent solution in distilled water is sprayed on at hourly intervals, and the affected surface is dried by an electric drier or by exposure to dry heat from electric lights. A tough and adherent coagulum forms after about twenty applications. Healing usually takes place in an uninterrupted and satisfactory manner. Occasionally pus collects under the coagulum; then the coagulum is either partly snipped away or removed entirely after softening by the application of gauze soaked in petrolatum. In uncomplicated cases the coagulum remains until healing is well advanced, when it is trimmed until the final portion detaches itself. Ulceration, or the final stage of bedsore, may spread in an alarming manner, and toxic absorption adds to the other burdens of the patient. Treatment may require almost daily variation according to the progress of the ulcer. Ointment and other greasy or oily preparations are unsuitable. In early cases of bedsore, treatment by elastoplast is always worth while. The plaster is applied so as to cover the ulcer and the surrounding skin. The plaster should not be stretched before it is applied, and it is left in position until it is loosened by the discharge. The loose plaster is removed, the ulcer is cleansed with sterile gauze and new plaster is applied. This process is repeated as often as necessary. Granulations are unimpaired by frequent dressings, and possibly the retained discharge possesses a proteolytic power that liquefies dead tissue. This treatment of bedsore resembles Winnett Orr's method in dealing with acute osteomyelitis. Only extending bedsore, when protection by plaster has failed, require moist applications. When the stage of healing is reached and the discharge becomes serous, the application of 10 per cent ichthammol in glycerin usually expedites healing. Red lotion or equal parts of zinc oxide and resin ointment encourage the growth of epithelium.

Japanese Journal of Experimental Medicine, Tokyo

15: 1-78 (Feb. 20) 1937

- Sterilizing Action of Halogenated Fatty Acids on Putrefactive Bacteria, Bacillus Typhosus and Vibrio Cholerae. S. Tetsumoto.—p. 1.
Sterilizing Action of Oxy Fatty Acids on Putrefactive Bacteria, Bacillus Typhosus and Vibrio Cholerae. S. Tetsumoto.—p. 9.
In Vitro Culture of Rabies Virus. K. Kanazawa.—p. 17.
Significance of Gold Molecule of Gold Compounds in Chemotherapy of Tuberculosis. K. Yanagisawa and S. Kawai.—p. 29.
Experimental Studies on Estrus Cycles of Parabiosed Animals. S. Kinoshita.—p. 49.

Bulletin Médical, Paris

51: 185-200 (March 20) 1937

- Simple Deontologic Story. C. Simon.—p. 187.
Agranulocytosis and Agranulocytic Syndrome. M. Lamy.—p. 188.
*Treatment of Furuncles and Carbuncles: Carbuncle in Hypoglycemia. L. Diamant-Berger.—p. 190.

Treatment of Furuncles and Carbuncles.—Many believe, Diamant-Berger states, that carbuncles and furuncles thrive best in debilitated and fatigued persons and yet rarely is absolute rest prescribed. It is also frequently believed that the staphylococcus likes sugar and that a diabetic patient constitutes a favorable medium for its development. As evidence against these well rooted ideas the author cites the history of a hypoglycemic patient with a large carbuncle on the neck, whose high temperature and general debility began to improve soon after the rectal administration of dextrose. The carbuncle itself, however, was not affected until after the patient had received strong doses of staphylococcus toxoid. The author believes that carbuncles and furuncles are never just local lesions but that septicemia should always be suspected. Perinephric phlegmons and osteomyelitis often follow. Thus cauterization of an immature furuncle is useless, even dangerous. Subcutaneous vaccination is the only useful treatment.

Nourrisson, Paris

25: 57-140 (March) 1937

- *Treatment of Toxic Choleraform Syndrome of Infant by Continuous Intravenous Instillations. R. Debré, J. Marie, P. de Font-Réaulx and Mlle. Jammet.—p. 57.
Initial Phase of Tuberculous Infection in Infancy. M. Lamy.—p. 94.

Treatment of Toxic Choleraform Syndrome of Infant.—Debré and his associates studied the hydrating effects of parenteral treatment. They found the Schick-Karelitz method of continuous intravenous injection with either Ringer's or isotonic salt solution to which a 5 per cent solution of dextrose has been added the most favorable. From 70 to 150 Gm. is injected, depending on the infant's weight, which gives the patient from about 12 to 25 drops a minute. No nourishment is given for from twenty-four to forty-eight hours and his lips are kept moist with a wet cloth. After that he may receive 20 Gm. of mother's milk, ass's milk or buttermilk. If no complications arise, this dose may be increased to from 60 to 80 Gm. every two and a half hours while the quantity of the injected salt solution is diminished. The median basilic vein, well recognizable in dehydrated infants, is used. The infant must be watched day and night. The number of drops injected must be recorded every hour. The immediate results of the injection are cessation of vomiting, natural sleep and replacement of dyspnea by rhythmic respirations. In about three days a rapid improvement of all symptoms is noticed, the alimentary equilibrium is established and the infant gains weight. The treatment may therefore be considered as directed not against the toxic infection but against the dehydration of the patient. In a few cases it happens that even after dehydration has been checked the toxic infection continues and the patient dies. If the temperature and vomiting persist and the face remains lifeless after the third day, there is little to be expected, especially in conditions of advanced cachexia.

Radiophysiologie et Radiothérapie, Paris

3: 281-470 (March) 1937

- Augmentation of Roentgen Resistance of the Seminal Epithelium to Small Doses. R. Ferroux, C. Regaud and N. Samsonow.—p. 281.
*Influence on Ovary Through Irradiation of Hypophysis with Radium and with Roentgen Rays. A. Lacassagne.—p. 297.
Radiosensitivity of Corpus Luteum and Uterine Mucosa. A. Lacassagne.—p. 315.
Radium Scatterings Outside Tube in Teleradio Therapy. P. Ferroux and A. Folichon.—p. 323.
Disintegration of Proteins Through Radium Rays. J. Loiseleur.—p. 337.
Cervico-Uterine Epitheliomas Treated in Vain by Radiotherapeutic Methods. C. Regaud and P. Hermet.—p. 349.
Roentgen Therapy Exclusively Used in Treatment of Epitheliomas of Uterus and Vagina. F. Baclesse.—p. 379.
Surgical Treatment of Adenopathies of Cancer of Tongue. A. Tailhefer.—p. 419.

Effect on Ovary of Irradiation of Hypophysis.—Lacassagne destroys the hypophysis of the rabbit by introducing radium into the gland. The animal is immobilized and a trepanation of 5 mm. in width is made right between the two

orbital prominences of the skull. Through the opening he introduces a hollow needle containing radium which, penetrating the meninges, passes between the frontal lobes and reaches the base of the skull, where it enters the sella turcica from above, perforating the hypophysis. The needle is left there and the opening in the skull is closed. No anesthesia is needed, since the animals are not perturbed: they accept the male immediately after and become pregnant in from two to eight days. In most cases all sexual activity ceases after eight days following the treatment, and about one month later a distinct atrophy of the nipples and vulva is noted. In the killed animal there are marked cytolytic changes of the ovaries, which gradually atrophy to about a third of their original weight and size. Destruction of only the anterior portion of the hypophysis is accompanied by no changes of the sexual apparatus. The animals stand fractional roentgen treatments well (two of from thirty to seventy-seven minutes per week). From three to five months later the animals were killed and no changes were found in the genital organs of the male or female rabbits. Intense irradiation over large fields bring about general dysfunction.

Revue de la Tuberculose, Paris

3: 129-256 (Feb.) 1937

Roentgenologic Accentuations of Bronchovascular Arborizations in Apparently Healthy Side Before and After Artificial Pneumothorax. E. Sergent and G. Poumeau-Delille.—p. 130.

*Blood Transfusions in Treatment of Pulmonary Tuberculosis. Pierre-Bourgeois, H. Gisselbresch and Simone Commerson-Teyssier.—p. 150.

Bilateral Phrenicotomy in Treatment of Pulmonary Tuberculosis. A. Dufourt and P. Galy.—p. 173.

Secondary Infections in Pulmonary Tuberculosis and Treatment with Autovaccines. M. Jaquerod.—p. 185.

Peculiar Manometric Oscillations in Artificial Pneumothorax. F. Triboulet and J. Tuchila.—p. 192.

Subpleural Emphysema of the Neck. E. Cantegril and J. Ferrié.—p. 197.

Polymorphism and Evolutionary Cycle of Tuberculous Virus. C. Rotaru.—p. 205.

Blood Transfusions in Pulmonary Tuberculosis.—Pierre-Bourgeois and his associates observe that medical literature contains little information about blood transfusions in pulmonary tuberculosis. The few authors who have nothing but praise for this form of treatment are forcefully contradicted by others. The authors obtained improvement in seven out of ten cases of hemoptysis by injecting small quantities in doses ranging from 50 to 150 cc. and never went beyond 300 cc., even in serious cases. The results obtained are superior to subcutaneous injections of oxygen. There were an improved coagulation and lessened hemorrhages, and a distinct increase in erythrocytes, lymphocytes, monocytes and eosinophils and in the percentage of hemoglobin. The polymorphonuclears were decreased. Transfusion is contraindicated in cachectic patients, patients with oscillating temperatures and those in whom the extent of their lesions renders their case hopeless. The improvements are not always stable. The favorable effect after the first transfusion may not continue after the successive transfusions. Besides these somatic effects there is also always a good psychotherapeutic effect.

Policlinico, Rome

44: 659-702 (April 5) 1937. Practical Section

Ascoli's Treatment in Malaria. M. Ascoli, A. Missiroli, A. Bonfigli, A. Casu, U. Diliberto, N. Musumeci, P. Riolo, Rocca and Terenzio.—p. 659.

*Treatment of Malarial Splenomegaly. F. Canova.—p. 670.

Intestinal Occlusion from Appendicitis. F. Sciacca.—p. 672.

Treatment of Malarial Splenomegaly.—According to Canova, administration of intravenous injections of progressive doses of from 0.01 to 0.1 mm. of epinephrine up to twenty-five injections (Ascoli's treatment) controls malaria and chronic malarial splenomegaly. The effects of epinephrine are similar to those of blood transfusion. Epinephrine has a tonic action on the heart. When the treatment is given in association with administration of quinine in acute malaria the depressive action of quinine on circulation is prevented. The repeated splenic contractions from epinephrine results in complete elimination of the parasites from the spleen, with consequent diminution of the danger of recurrence of the infestation and improvement of the patient's general condition.

Rinascenza Medica, Naples

14: 145-180 (March 15) 1937

*New Acute Adenolymphopathy. A. Pirera.—p. 151.

Syphilis and Tuberculosis of Breast: Case. M. Bortolozzi.—p. 156.

*Glossitis from Vincent's Fusospirillary Symbiosis. A. M. Cicchitto.—p. 159.

New Type of Acute Adenolymphopathy.—Pirera describes a new epidemic disease which has been recently observed in Naples and in the country. The disease has a favorable prognosis and a brief evolution and is contagious. The incubation period lasts a week. The parotid and salivary glands become enlarged and painful at the onset. Fever, after chills, begins three days after the appearance of the glandular inflammation. Except for the parotid and especially the salivary glands, no other glands are involved in the process. The axillary glands are slightly painful but never enlarged. The spleen is slightly painful and enlarged. There is intense headache, lack of appetite and pallor all through the disease from the beginning of the incubation period. The fever and glandular symptoms abate and completely disappear in a week. Complete recovery is prompt. Urine is normal all through the disease. There are frequent and slight pharyngeal and conjunctival hyperemias. According to the author, the disease is caused by a lymphotropic virus which is like that of epidemic parotitis and the Filatov and Pfeiffer types of glandular fever. The disease slightly resembles epidemic parotitis and glandular fever, but it has some different symptoms, especially the selective localization at the salivary glands and the benign evolution without any complications. The author suggests calling the disease benign acute salivary lympho-adenitis.

Glossitis from Vincent's Fusospirillary Symbiosis.—Cicchitto has studied ulcerative glossitis caused by Vincent's organisms in natives in tropical countries. The mouth, pharynx and tongue are normal, except for the presence of a small painful pustule at the tip of the tongue, which in a few days goes through processes of necrosis and ulceration. The exudates and fragments of tissues from the ulcer show the presence of Vincent's fusospirillary symbiosis. There are no fever and general symptoms. Cervical and submaxillary adenopathies are present. The disease is unrelated to syphilis, avitaminosis, infections and exanthems. The treatment consists essentially in administering intravenous injections of arspenamine combined with local treatment of daily applications of arspenamine, methylene blue or of the following preparation: Castellani's fucin 100 Gm., resorcinol 1 Gm. and acetone and boric acid 4 Gm. each. Two cases are reported.

Semana Médica, Buenos Aires

44: 709-784 (March 11) 1937. Partial Index

*Costa Reaction: Technic and Clinical Application. T. Martini and M. Litter.—p. 709.

Cold Granulitis: Case. C. Patiño Mayer, V. Torino and E. Pittaluga.—p. 727.

Sodoku: Rat Bite Fever: Case. N. S. Lóizaga, D. Vivoli and R. Gamba.—p. 749.

Bilateral Folliculoma of Ovary of Malignant Evolution: Case. N. Arenas.—p. 751.

Indications of Insulin in Conditions Other Than Diabetes. J. J. Moss.—p. 766.

Diagnostic Importance of Roentgen Examination of Esophagus in Frontal Position in Heart Diseases. C. Lian and J. Facquet.—p. 777.

Costa Reaction.—Martini and Litter performed the Costa procaine hydrochloride-formaldehyde reaction on the blood serum of 119 persons. They used Rubenstein's technic with the following modifications: 1. The venous blood was taken from persons with a fasting stomach. 2. The concentration of sodium citrate in the blood was in the proportion of 0.5 per cent. 3. The time for reading the results varied from three to fifteen minutes when 0.1 cc. (2 drops) of blood was used in the reaction and from one to eight minutes when 0.15 cc. (3 drops) of the blood was used. Lack of flocculation after this time indicated negative results of the test. The authors conclude that the reaction gives always negative results in normal persons and positive results in infections, cancer and toxic conditions, such as genuine uremia. Gastric cancer and gastric ulcers can be differentiated from the results of the test, which has no practical application in diseases of the circulatory system. In certain cases the intensity of the results of the

reaction follow the evolution of the disease. The results of the test become negative a few days before death occurs and change no more to positive results. The results of the Costa test parallel those of the sedimentation speed of the erythrocytes. Costa's is a reaction of flocculation of the proteins in the blood serum. It depends on disturbances of the ratio of the albumins, globulins and fibrinogen in the blood plasma. The technic of the test is simple and the results are quickly obtained. The test is of clinical value and may be substituted for the test of the sedimentation speed of the erythrocytes.

44: 909-972 (April 1) 1937. Partial Index

- Hereditary and Conjugal Direct Tertiary Syphilis: Cases. A. Pons Lezica.—p. 924.
Autochthonous Psittacosis in Buenos Aires: Case. J. A. Bozzola.—p. 929.
Chorea: Clinical and Etiologic Study of Case. A. Segers and J. E. Mosquera.—p. 938.
Apical Lobule of Azygos Vein: Does it Show Tuberculosis? M. E. Vergelin.—p. 945.
*Value of Sedimentation of Erythrocytes in Tuberculosis. A. Castoldi.—p. 957.
Treatment of Gonorrheal Epididymitis. D. Calzetta, H. J. T. Pisetta and A. Díaz Colodrero.—p. 967.

Value of Sedimentation of Erythrocytes in Tuberculosis.—Castoldi says that the test is nonspecific in tuberculosis. However, when it is taken in association with the results of the clinical examination and of other laboratory tests, it is of diagnostic value in tuberculosis. It is also of prognostic value. The sedimentation of the erythrocytes is increased in grave forms of tuberculosis. The graver the type or evolutionary phase of the disease, the more increased the sedimentation of the erythrocytes. The test can be considered an index as to the improvement of patients, showing the efficacy of a treatment administered in given cases. A brief report of sixty-five cases, showing the relation between the sedimentation of the erythrocytes and the evolution of the disease in patients suffering from tuberculosis of different types, is given by the author.

Beiträge zur klinischen Chirurgie, Berlin

165: 177-336 (March 15) 1937. Partial Index

- *Contribution to Knowledge of Primary Muscle Tuberculosis. S. Kushizaki and K. Saito.—p. 177.
Etiology and Morphology of Sacrococcygeal Fistulas. K. Deckner.—p. 210.
Exstrophy of Urinary Bladder and Its Surgical Treatment. K. Luhmann.—p. 221.
Results with Löhrl's Method of Treatment of Wounds. O. Timpe.—p. 243.
Question of Carnofil as Substitute for Catgut. H. Geissendörfer.—p. 251.
Technic of Suture of Cleft Palate. K.-E. Herlyn.—p. 276.

Primary Muscle Tuberculosis.—According to Kushizaki and Saito, primary muscle tuberculosis belongs to the rarest lesions, the total number of cases thus far recorded not exceeding 100. The authors observed two patients recently operated on at the Kyusu University at Fukuoka. A review of the literature shows that the lesion was observed, in order of frequency, in the muscles of the forearm, the leg and the thigh, most frequently as a solitary lesion. One of the authors' patients presented a solitary lesion of the right pectoralis major muscle, while the second presented symmetrical lesions of all four extremities. The lesion is seen most frequently in young men. One of the authors' patients was a man aged 24 and the other a woman aged 34. In a number of cases, trauma or bodily overexertion seemed to play an etiologic part. The state of the primary tuberculous lesion does not seem to have any relationship to the genesis of the tuberculous process in the muscle tissue. Clinical and roentgenologic studies did not reveal any tuberculous lesion in their first case, while in the second the lesion present was that of roentgenologically demonstrated calcified tuberculous glands of the hilus. Muscle tuberculosis may present a nodular form, an abscess or a fungating sclerosing myositis. The abscess is the more frequent type, whereas the fungating form is the rarest. The lesion may run a latent course for months, manifesting itself as a movable, tender, subcutaneous tumor the size of a walnut. Its surface is smooth, the consistency not pronounced and the overlying skin normal. Clinical diagnosis is difficult, and histologic or bacteriologic confirmation is necessary. Neoplasms, parasites and chronic specific infections must be considered in the dif-

ferential diagnosis. Bier's hyperemia, tuberculin, puncture, followed by injection of 10 per cent iodoform in glycerin, and roentgen irradiation have been used in the treatment of the lesion. The authors believe that radical excision is indicated if one is to obtain an ideal result. General treatment of the patient is always indicated. Both of the authors' patients were cured by excision and roentgen irradiation.

Klinische Wochenschrift, Berlin

16: 441-480 (March 27) 1937. Partial Index

- *Pathologic Elimination of Vitamin A in Urine. E. Schneider and H. Weigand.—p. 441.
Question of Allergically Conditioned Impairment of Liver. F. Andina.—p. 443.
*Relations Between Pregnancy and Hypovitaminoses of Intestinal Origin. G. Gaetgens.—p. 444.
Thickening of Blood in Clinical and Experimental Insufficiency of Adrenals. S. Thaddea and D. Albers.—p. 448.
Degree of Iron Storage in Organism Following Administration of Iron-Copper Combination. W. Brandt.—p. 450.
Problem of Isolated High Sugar Content of Skin or Cutaneous Diabetes, Respectively. E. Urbach, F. Depisch and Grete Sicher.—p. 452.

Pathologic Elimination of Vitamin A in Urine.—Schneider and Weigand state that they investigated the elimination of vitamin A in 180 cases. The tests were made without and with the vitamin A tolerance test. It was found that the normal organism does not eliminate vitamin A in the urine even after a tolerance test with large doses. However, a large percentage of patients with cancer as well as of those with tuberculosis or with general infections did eliminate vitamin A in the urine. The authors regard impairment of the liver or a change in the renal permeability as the cause of this elimination. Depending on the quantity and the duration of the elimination, a hypovitaminosis may result from the loss of vitamin A.

Pregnancy and Hypovitaminoses of Intestinal Origin.—Gaetgens points out that it has been proved by others that the vitamin C requirements of the pregnant organism are increased. The fetus takes its requirements of cevitamic acid from the maternal organism, which in turn extracts them from the food. If the food does not supply adequate amounts, the maternal organism will show signs of vitamin C deficiency. If the development of hypovitaminotic conditions is to be avoided during pregnancy, it is necessary to exclude all exogenous and endogenous factors that are likely to increase further the already great cevitamic acid requirements. A deficiency of cevitamic acid in the food is an exogenous factor and all those conditions which prevent the proper utilization of the vitamin are endogenous factors. The author gives especial attention to the latter, particularly to disturbances in the gastrointestinal function. He reports the clinical history of a pregnant woman, aged 31, who developed ulcerous colitis and a severe deficiency of vitamin C. He emphasizes that whenever gastro-intestinal disturbances develop in the course of pregnancy it is necessary to supply the maternal organism with large quantities of vitamins by parenteral administration.

Medizinische Klinik, Berlin

33: 393-424 (March 19) 1937. Partial Index

- *Clinical Aspects and Treatment of Diabetic Coma During Childhood. R. Priesel.—p. 393.
*Specific Protein Allergy as Cause of Gout and Rheumatism. F. Gudzent.—p. 395.
Somatopsychic Manifestations of Metabolism. W. Jaensch.—p. 398.
Myeloblastosis with Aspects of Agranulocytosis, Hemorrhagic Aleukia and Severe Hemolytic or Aplastic Anemia. R. Klima and H. Seyfried.—p. 400.
Leukemia of Skin. H. Gottron.—p. 404.
Development of Agranulocytosis in Treatment of Neurosyphilis. H. Sprockhoff and H. C. Buhrmester.—p. 408.

Treatment of Diabetic Coma During Childhood.—Priesel says that it should be remembered that diabetic coma is an intoxication of the organism with the excessively produced ketone bodies, but also that some of the clinical manifestations are the result of dehydration, in that the tissue cells have lost their capacity of binding water. In accordance with this, the following factors are essential in the treatment: 1. Insulin must be administered in order to aid the insular organ, which has suddenly become completely insufficient. 2. Fluids must be administered so as to combat the exsiccation. This also improves the circulatory weakness. The administra-

tion of insulin must begin at once and must be continued at intervals of one, two or three hours until a complete change is observable in the metabolic condition. The total dose depends on the severity of the coma. In order to avoid hypoglycemic complications, it is advisable to make blood sugar tests in the course of the treatment.

Specific Protein Allergy as Cause of Gout and Rheumatism.—Gudzent cites clinical observations which proved to him that the acute attack of gout is not the result of acute deposits of uric acid but rather an allergic reaction to a gout toxin in the ingested foods or drinks. He also observed patients with chronic articular rheumatism who stated spontaneously that they always felt worse after ingesting fish, eggs or milk. With protein substances of various origins he was able to produce in animals that had been sensitized to the particular foreign protein a disorder resembling human rheumatism. He found that thorough anamneses reveal that rheumatism or gout occurs almost exclusively in persons among whose blood relatives allergic disorders are found, such as bronchial asthma, hay fever, urticaria, eczema, migraine and lithiasis. Tests with solutions of proteins from meats, cereals, fish, vegetables, milk and eggs and also from mold and yeast fungi revealed that nearly all patients with rheumatism and gout had a hypersensitivity to one or several protein substances. About 35 per cent were sensitive to animal proteins, 55 per cent to vegetable proteins and 10 per cent to the proteins of mold and yeast fungi. Persons who were free from allergy produced no reactions, but those from families with allergy nearly all had positive reactions. On the basis of these observations the author concludes that the various forms of rheumatism are a hyperergic reaction elicited by a hereditary or acquired hypersensitivity to a foreign protein. The treatment should consist in elimination of the offending protein and in desensitization with the specific protein allergen.

Münchener medizinische Wochenschrift, Munich

84: 441-480 (March 19) 1937. Partial Index

- Tuberculosis and Organism on the Whole. H. von Hayek.—p. 441.
 *Do Tuberculous Patients Have Special Resistance Against Intercurrent Inflammatory Disorders? W. Roloff.—p. 444.
 Pathogenesis and Therapy of Tuberculosis from Biologic Point of View. A. Deiz.—p. 445.
 Progress in Campaign Against Tuberculosis. G. Petragani.—p. 450.
 Question of Hereditary Epilepsy. W. Villinger.—p. 461.
 Parathyroid Insufficiency and Parathyroid Epilepsy. K. Hoesch.—p. 467.

Resistance to Inflammatory Disorders in Tuberculosis.

—Roloff points out that, although tuberculosis may concur with almost any disorder, it has been observed that intercurrent inflammatory disturbances are rare in active tuberculosis. To be sure, tuberculous patients who are in a sanatorium are protected against many external influences that might cause intercurrent disorders, but this factor was taken into consideration, and observations were made also on tuberculous patients who were only under ambulatory observation. Appendicitis, cholecystitis and nontuberculous nephritides are hardly ever observed in patients with open tuberculosis. Nontuberculous pneumonias have been reported in tuberculosis, but many of the reports are doubtful and it is generally conceded that the concurrence of pulmonary tuberculosis and lobar pneumonia is rare. The incidence and significance of true influenza in tuberculous patients is still a matter of dispute. It has been stated that inactive tuberculous foci were reactivated by influenza, but the author thinks that the action of influenza on tuberculosis, particularly the active forms, has been overestimated. He thinks that the many types of colds that occur in tuberculous patients are frequently tuberculous exacerbations that have been interpreted as bronchitis or influenza. He further states that pulmonary abscesses have only rarely been described in florid tuberculosis and, although the slow, tuberculous otitis media is well known in tuberculous patients, the acute, nonspecific otitis media is rare. Epidemics of chickenpox, parotitis, German measles and measles and occasional cases of scarlet fever that occurred in the children's department never attacked children with open tuberculosis. To be sure, the departments were separated, but possibilities of transmission were nevertheless present. Although the author has no definite proof that typhoid and dysentery are likewise rare in patients with open tuberculosis, he believes that here

too is some protection. Syphilis and gonorrhea, however, seem to stand apart, for against these the patients with open tuberculosis seem to have no resistance. The author believes that the tuberculous process develops powers that prevent the taking or the further development of nontuberculous processes. The mechanisms of this resistance are not understood as yet, but the author hopes that further investigations may clarify this problem.

Zeitschrift für klinische Medizin, Berlin

131: 691-834 (March 3) 1937. Partial Index

- Meningitis Caused by Influenza Bacilli. K. Petzelt.—p. 691.
 *Absorption of Carbon Dioxide and Oxygen in Case of Rectal Administration and Action of These Gases on Circulation and Metabolism. H. Kaunitz and G. Leiner.—p. 706.
 *Ferment Deviation: Diagnosis of Pancreatic Disturbances. J. Brinck and M. Gülzow.—p. 747.
 Behavior of 1.2 Nitrosonaphthol Reaction in Patients with Hypertension and in Those with Normal Blood Pressure. R. Enger and H. Arnold.—p. 759.
 Clinical Aspects of Spontaneous Hypoglycemia. Y. Seino.—p. 770.
 Etiology of Hyperchromic Anemia and Funicular Myelosis. F. Nagl.—p. 781.

Action of Rectally Administered Gases.—Kaunitz and Leiner point out that carbon dioxide therapy has gained in importance since it was realized that it exerts favorable effects on the circulation. In a number of human subjects with various disorders and in dogs they investigated how much carbon dioxide or oxygen is absorbed in case of rectal administration. It was found that the oxygen intake through the intestine is slight and has hardly any therapeutic interest. The carbon dioxide and the oxygen contents of the blood were not noticeably increased after the rectal administration of the gases, which seems to suggest that the carbon dioxide, which is taken in through the intestine, is absorbed by the tissues. The hemodynamic changes that are noticeable after the rectal administration of carbon dioxide indicate a modification of the large and small circulation. There is an increase in the beat and minute volumes, a slackening of the precapillaries and a reduction in blood pressure, which is especially pronounced in some cases of hypertension. Moreover, there is improvement in the capillary function and a modification of the vasomotor mechanism which results in acceleration of the blood discharge into the right side of the heart. The increase in the reduced arterial saturation indicates an improvement in the membrane function of the pulmonary capillaries. Studies on the elimination of water, minerals, nitrogen, urea and lactic acid revealed in general a slight increase in the elimination of these substances; especially pronounced were the changes in two cases of nephritis.

Ferment Deviation: Diagnosis of Pancreatic Disturbances.—Like Katsch, Brinck and Gülzow apply the term ferment deviation ("fermententgleisung") to the increased appearance of pancreatic ferments in blood and urine. The deviation of the ferment takes place when the physiologic ferment-lymph or ferment-blood barriers are interrupted. This can be caused by closure of the pancreatic ducts, by changes in the pancreatic cells and by acute decomposition of ferment-producing parenchymal cells. The authors limited their investigations to the diastatic ferment in blood and urine. It was their aim to determine when and under what conditions the diastase content of blood and urine is increased. After pointing out that the diastase content of the blood is composed of cellular diastase and of excretory diastase and that approximately half of the normal blood diastase is derived from the pancreas, they state that they made their studies with Baltzer's modification of Ottenstein's method. They observed deviation of the ferment not only in pancreatic disorders but also in other disturbances. During the acute stage of pancreatic disorders, deviation of the ferment may be found, whereas during the chronic stage, particularly in cirrhotic processes, the passage of ferment into the blood may be reduced. The change in the blood diastase values may be the manifestation of different stages in the disease of the pancreas. In circulatory disorders, increased blood diastase values indicate venous stasis, edema and perhaps hemorrhages. Reduced values suggest stasis induration. In pernicious anemia and in some cases of leukemia, the blood diastase values are increased. The increase of diastase in pernicious anemia is probably the manifestation of edemas. If deviation of the ferment occurs in infectious diseases, it may

be the manifestation of serous pancreatitis or of a pancreatic hemorrhage. The reduced passage of ferments into the blood suggests a chronic cirrhotic inflammation or a ferment blockage resulting from a parenchymal impairment. Disturbances in the organs adjoining the pancreas are often accompanied by deviation of the ferment as the manifestation of a hyperemia, of a canalicular sialangitis or of penetrating processes. In diabetes mellitus the blood diastase is reduced. The authors conclude that, although the determination of the diastase content of the blood cannot be a substitute for a differentiated clinical diagnosis, it suggests the possibility of a pancreatic disorder whenever it differs from the normal content.

Zentralblatt für Gynäkologie, Leipzig

61: 673-736 (March 20) 1937

Blood Picture in Pyelitis Gravidarum. E. von Schubert.—p. 678.

Newer Points of View in Institutional Treatment of Pregnancy Pyelitis. G. Kulitzky.—p. 694.

*Eclampsia and Renal Decapsulation. R. Ahrens.—p. 699.

Pregnancy Glycosuria. H. Dietel.—p. 700.

Giant Urinary Bladder of Fetus and Congenital Pseudocirrhosis of Liver with Eclamptic Necroses and Ascites. F. Gercken and R. Knepper.—p. 710.

Treatment of Carcinoma of Female Urethra. J. Rivoir.—p. 714.

Eclampsia and Renal Decapsulation.—Ahrens reports the history of a woman who six weeks before her expected delivery suddenly developed convulsions. Venesection, the administration of narcotics, rupture of the bag of waters and metreuryasis were of no avail, for several hours later the patient was in eclamptic coma but delivery did not take place. A cesarean operation was considered inadvisable, because the many vaginal manipulations, cervical tears and other complications involved the danger of infection. Renal decapsulation was decided on. After this operation the convulsions ceased at once, but the patient still remained unconscious. Labor pains set in again and a living child was born. Gradually the mother's consciousness returned, but slight psychic disturbances recurred for a time. In the evaluating discussion the author points out that, if the case had been under his observation from the beginning, he would have resorted to a cesarean operation, but he admits that the renal intervention was not only less harmful but also more advantageous for the later functional and organic restoration of the kidney. He admits that it is not advisable to draw general conclusions from the favorable course of one case, but he thinks that in similar cases, particularly in severe early eclampsia when conservative measures fail, renal decapsulation would be preferable to a cesarean operation.

Wiener klinische Wochenschrift, Vienna

50: 363-394 (March 19) 1937. Partial Index

Diagnostic Significance of Puncture of Bone Marrow. N. von Jagié and R. Klima.—p. 363.

Remarks on Conservative Surgery of Biliary Passages. F. Mandl.—p. 371.

*Myxedema in Syringomyelia. K. T. Dussik.—p. 372.

Experiences with Treatment of Lobar Pneumonia. B. Peričić.—p. 374.

*Simple Internal Medicinal Treatment of Acute Coryza. F. Hutter.—p. 376.

Therapy of Thrombophlebitis and Thrombo-Embolism. C. Ewald.—p. 377.

Myxedema in Syringomyelia.—Dussik states that the concurrence of myxedema with syringomyelia, both of which are comparatively rare, has been reported only once before but that nervous disorders have been repeatedly observed in the ascendancy of patients with myxedema. He himself observed a patient in whom a classic myxedema developed many years after a syringomyelia had become manifest. It is noteworthy that the myxedematous changes developed at first in circumscribed areas that were most affected by the syringomyelia. In addition to the physical changes there also developed mental disturbances. The memory became impaired, there was drowsiness, the thinking process was slowed down, the same thoughts and actions recurred, and there were frequent agoraphobic manifestations. In discussing the connections between the myxedema and syringomyelia, the author suggests that a disturbance in the cervical sympathetic, which develops in the course of the syringomyelia, may have impaired the sympathetic innervation of the thyroid. In this connection it is pointed out that syringomyelia has been known to concur with exophthalmic goiter. On the other hand, it is possible that central sympa-

thetic factors might have played a part in the development of the myxedema. The author says that treatment with a thyroid preparation produced favorable results in the reported case, in that the myxedema symptoms disappeared. The symptoms of syringomyelia, however, remained unchanged.

Treatment of Acute Coryza.—Hutter reviews the studies on the common cold reported by H. S. Diehl in THE JOURNAL, Dec. 23, 1933, pointing out that in trying various opiates Diehl found that the results were most favorable when a combination of codeine-papaverine was used. The author followed Diehl's suggestion in the treatment of cases of acute coryza, which he regards as a definite disease entity. He gave five times daily, for two days, a dose of codeine-papaverine and observed that, when the medication was begun sufficiently early, the effect was often noticeable after a few doses. He emphasizes that he employed the treatment only in cases of acute coryza, that is, during the "running stage," for Diehl had observed that during the subacute phase with its mucopurulent discharge the codeine-papaverine treatment is no longer effective, because secondary infection has already set in. The author also excluded cases of allergic rhinitis from the codeine-papaverine treatment and, by thus carefully selecting his cases for the codeine-papaverine treatment, he found it effective in all cases.

Problemy Tuberkuleza, Moscow

Pp. 1-148 (No. 2) 1937. Partial Index

Extraction of Ferments of Nuclease Group and Their Lytic Action on Koch's Bacilli. D. A. Deribas, D. Ya. Yavlinskaya and G. I. Boevskaya.—p. 3.

Pathogenesis of Pleural Suppuration in Pulmonary Tuberculosis. I. N. Arnold and P. Ya. Slutskaya.—p. 13.

Anatomopathology of Phrenico-Exeresis in Pneumonic Forms of Tuberculosis. V. I. Puzik and Z. N. Shavrova.—p. 20.

Breaking Down and Synthesis in Tuberculosis. M. G. Kuzin.—p. 28.

Tuberculin Titer in Various Diagnostic Groups of Tuberculous Children. M. Z. Lubetskaya.—p. 33.

*Comparative Value of Method of Thick Smear and of Biologic Test in Laboratory Diagnosis of Tuberculosis. A. E. Ozol.—p. 39.

*Artificial Pneumothorax in Bilateral Pulmonary Tuberculosis. B. Z. Bunina, A. O. Gurevich, M. P. Rosenoer and A. D. Kulikov.—p. 78.

Laboratory Diagnosis of Tuberculosis.—Ozol's method of microscopic examination of the sputum, urine, and pleural exudate consisting of concentrating the material to be examined by dissolving it in antiformin, centrifugating the dissolved matter and subjecting it to the author's thick smear method of staining published in 1934 proved to be as reliable as the biologic test. The latter was positive in only one of 125 cases that were negative with the bacterioscopic antiformin thick-smear method. In two cases the microscopic examination of a thick smear antiformin preparation was more sensitive than the biologic test. In some of the author's cases of experimental tuberculosis in guinea-pigs, the diagnosis could be established in the absence of loss of weight, of a positive Mantoux reaction, of gross pathologic lesions or tubercle bacilli in the organs, on histologic examination of the tissues only.

Artificial Pneumothorax in Pulmonary Tuberculosis.—Bunina and her associates report observations on 219 patients with an active bilateral pulmonary tuberculosis treated either by a unilateral or by a bilateral artificial pneumothorax and observed for a period of six years. In sixty of the cases, unilateral pneumothorax was induced. The authors reject the theory of bronchogenic aspiration in the genesis of the development of the tuberculous lesions in the lung opposite that on which collapse therapy was practiced. Study of serial roentgenograms convinced them that the new foci in the opposite lung develop on the basis of preexisting lesions. They found that 38 per cent of their patients with infiltrating lesions were rendered bacillus free as the result of treatment with unilateral artificial pneumothorax, and the same effect was noted in 32 per cent of the cases in which there were disseminated foci. Sixteen of the sixty patients treated by unilateral pneumothorax developed a pneumopleuritis. Twelve of these were cases presenting caseating lesions. The authors conclude that recent infiltrating lesions with a more or less extensive involvement of the opposite lung without, however, clinically or roentgenologically demonstrable destructive lesion are best treated by a unilateral pneumothorax. Induction of artificial pneumothorax on the opposite side is indicated when the lesions there

begin to show signs of breaking down. The collapse therapy should not be postponed long. Simultaneous bilateral induction of artificial pneumothorax is indicated for cases exhibiting a recent infiltrating bilateral process with a tendency to break down or with disseminated foci and cavities. In cases in which there are recent bilateral lesions and marked predominance in one lung, one may commence with a unilateral pneumothorax. Bilateral pneumothorax therapy may be practiced in cases of bilateral caseating lobular pneumonia, but its effect is only palliative.

Acta Medica Scandinavica, Stockholm

91: 213-356 (Feb. 11) 1937

- New Trend in Study of Normal and Pathologic Physiology of Human Stomach. O. B. Makarevich.—p. 213.
Clinical Investigations in Cardiac Output of Patients with Compensated Heart Disease During Rest and During Muscular Work. H. E. Nielsen.—p. 223.
*Influence of Histamine on Renal Function. T. Bjerling.—p. 267.
Renal Lesion from Traumatic Shock. E. Husfeldt and T. Bjerling.—p. 279.
Experimental Studies on Bronchial Asthma. P. Kallós and W. Pagel.—p. 292.
Modification of Biologic Properties of Cerebrospinal Fluid in Epileptic Patients. L. Papadato.—p. 306.
Present State of Problem of So-Called Septic "Influenzal" Meningitis. J. Mulder.—p. 320.
Formol Gel Reaction and Other Globulin Reactions. J. Bing.—p. 336.

Influence of Histamine on Renal Function.—Bjerling presents an account of investigations on the influence of histamine on blood pressure and on the urea and creatinine clearances. The clearance of the two substances was determined in two periods, each of twenty or thirty minutes, prior to the histamine injection, and in the same period the blood pressure was measured regularly. After the histamine injection (1 mg. subcutaneously) the clearance was determined in periods of varying length. The blood pressure was measured every minute or every second minute. The patients were examined in the morning while they were fasting and in bed. There were seven in all, three of them with essential hypertension. The author observed that after the injection of 1 mg. of histamine the systolic and diastolic blood pressure falls. The systolic pressure decreases more in patients with essential hypertension than in those with normal blood pressure. Both creatinine and urea clearances decrease simultaneously with the blood pressure. However, there is no absolute proportion between the reduction in blood pressure and the decrease in clearance. Therefore the author is inclined to ascribe the latter to local circulatory changes in the kidneys. The concentration indexes for creatinine and urea rise simultaneously with the falling clearances, which indicates that both glomeruli and the vessels around the tubules are influenced by histamine. A comparison of the creatinine and urea clearances shows that the latter changes most. In one case, in which there was an especially great reduction in blood pressure, albuminuria occurred without any other demonstrable pathologic components in the urine. The total excretion of protein follows the fluctuations in the filtration. The total protein content of the blood does not change after histamine injection.

Acta Obstet. et Gynec. Scandinavica, Helsingfors

17: 1-132 (No. 1) 1937. Partial Index

- Actions of Estrin on Functions of Corpus Luteum. A. Westman and D. Jacobsohn.—p. 1.
Puerperal Uterus Inversion. T. Wadstein.—p. 24.
Tetanus Following Criminal Abortion. E. Petersen.—p. 36.
*Roentgenologic Measurement of Diameter of Conjugata Vera. V. Madsen.—p. 53.
Investigations on Elimination of Estrogen and of Gonadotropic Substance in Case of Uterine and Vaginal Aplasia. E. Möller-Christensen.—p. 63.
Primary Sarcoma of Small Intestine Diagnosed and Operated on as Uterine Myoma: Case. M. Renvall.—p. 119.

Roentgenologic Measurement of True Conjugate Diameter.—Madsen describes his experiences with a roentgenologic method of measuring the true conjugate diameter of the pelvis, which was first described by Weitzner in 1935. The projection is made while the patient is in the lateral position. Before the exposure is made, a metal ruler is attached to the patient's back with adhesive tape so that it passes over the spinous processes of the lumbar spine and sacrum. The lower end of the ruler lies in the cleft between the buttocks.

The central ray is directed against the posterior rim of the acetabulum. The accurate placement of the patient, the exact attachment of the metal ruler and the exact projection of the central ray are important for the correctness of the results. After explaining and illustrating the computation by means of a diagram, the author describes his experiences with the method in several women with narrow pelvis. The results are reliable and, since the method is comparatively simple, the author recommends it for clinical application.

Hospitalstidende, Copenhagen

80: 253-280 (March 9) 1937

- *Studies on Tuberculosis in Children with Especial Regard to Clinical Value of Tuberculin Titer. T. K. With.—p. 253.
Treatment of Gonorrheal Vulvovaginitis with Estrin. A. Buhmann.—p. 268.
Rational Principle for Leading Off Current in Registration of Precordial Leads in Clinical Electrocardiography. K. H. Larsen and E. Warburg.—p. 276.

Tuberculosis in Children.—With says that graduated intracutaneous tests were made in 116 tuberculous children with doses of from 0.000001 to 1 mg. tuberculin and that the proportion between the redness and the infiltration of the reaction was studied. The sensitivity was highest in primary tuberculosis, somewhat lower in pleuritis paratuberculosis, still lower in healed primary tuberculosis, and lowest in meningitis and miliary tuberculosis. The graduated intracutaneous test is therefore considered a valuable diagnostic aid in everyday clinical work in a children's department.

Ugeskrift for Læger, Copenhagen

99: 269-298 (March 11) 1937

- *Hemorrhagic Diatheses. C. Holten.—p. 269.
Leukokeratosis of Penis. O. Povlsen.—p. 278.
Application of Festal as Agent for Increase of Weight. I. Freuchen.—p. 282.
*Chronic Lead Poisoning: Case. A. Nyfeldt.—p. 283.

Hemorrhagic Diatheses.—Although he emphasizes that other factors may also play a part, the causes of hemorrhagic diathesis outlined by Holten according to the main pathogenic factor are (1) disturbances in coagulation, (2) changes in the blood vessels and (3) in some cases rarer disorders. The disturbances in coagulation depend (1) on changes in the blood platelets (a) of quantitative kind, due to impairment of the bone marrow function, as seen in essential thrombopenia, symptomatic thrombopenia (in aplastic anemia, leukemia, tumor, chronic benzene intoxication, acute febrile disturbances), and to disorders of the spleen in Banti's and in Gaucher's disease, and (b) of qualitative kind, in hemophilia, hereditary thrombasthenia and constitutional thrombopathy, and (2) on fibrinogen deficiency, seen in grave hepatic disorders. The changes in the blood vessels appear in anaphylactic purpura (purpura simplex, Henoch's purpura, Schönlein's purpura, allergic purpura), purpura fulminans, simple symptomatic purpura (in typhoid, endocarditis lenta, influenza, nephritis, meningococcal infection), in intoxication, C avitaminosis (scurvy, infantile scurvy) and in hereditary hemorrhagic telangiectasis. In the author's opinion essential thrombopenia is less rare than formerly supposed and he reports two of the eight cases observed by him in five years. There are three main methods of treatment: transfusion, the procedure in acute attacks, splenectomy, contra-indicated in acute cases, and roentgen treatment. Two cases of Henoch's disease are reported, also one of probable Banti's disease, not diagnosed until three years after the onset of recurrent gastric hemorrhages, in which blood transfusion made splenectomy possible, with improvement continuing three and a half years after operation.

Chronic Lead Poisoning.—Nyfeldt's patient is an employee of the criminal identification bureau of the police department whose daily occupation for twenty-six years has been the examination of articles for finger prints. He has dusted each article with large amounts of finely pulverized white lead, then brushed the powder away, bending over the article to detect possible prints, and thus inhaled considerable quantities of white lead. The first symptoms of lead colic and lead neuritis appeared twenty years ago; recently signs of lead arthralgia set in. The diagnosis was confirmed by the demonstration of 5 per cent basophil punctated erythrocytes.



Chas Gordon Heyd

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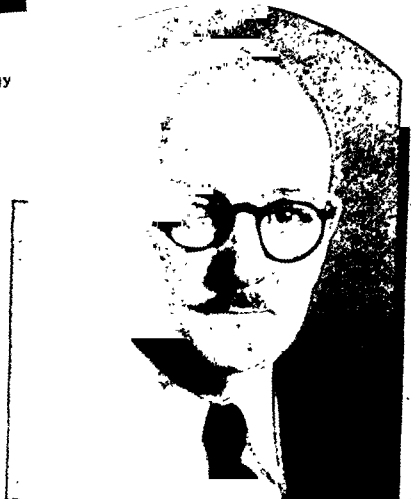
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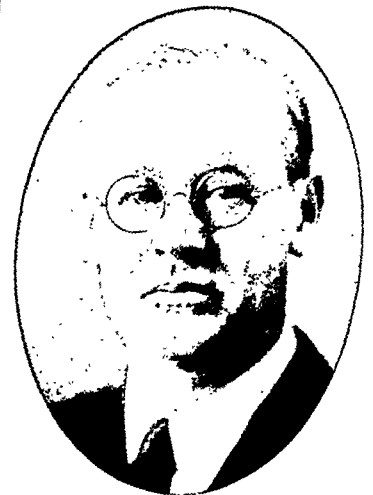
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INDICATIONS FOR THE OPERATIONS OF CARDIOLYSIS, PERICARDIOTOMY AND PERICARDIECTOMY

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Our object in this presentation is to focus attention on the subject of pericarditis and to develop greater familiarity with certain operations performed on and around the heart. That there is a definite indication for these procedures is attested by the report of many cases in the literature. It is a matter of regret that surgery involving the heart is usually deferred so long that operation can scarcely be expected to afford any relief.

While pericarditis is not a common disease, it is unfortunate that it so frequently is overlooked. Post-mortem records have shown in the experience of one of us, while an intern in the Philadelphia General Hospital in 1900, that pericarditis was undiagnosed more often than any other disease. In the past ten years in the Philadelphia General Hospital, out of 19,500 postmortems, 146 cases of pericarditis were found, of which only 4 per cent had been diagnosed clinically. With the passing of the years, therefore, but little appreciable improvement has been shown in the diagnosis of pericarditis with or without effusion, despite the modern refinements in diagnosis derived from cardiograms, roentgenograms and the like. It has been noted that in many cases coming to autopsy the disease was so extensive that we feel certain that surgery could have helped save a life or at least prolonged it by easing the overburdened heart had it been recognized at its inception. It is surprising to note that surgical intervention was considered only in about three cases in ten years.

By way of introduction, brief reference will be made to the etiology and diagnosis of pericarditis in its acute and chronic stages.

Pericarditis is rarely, if ever, a primary process. While it more often develops as the result of rheumatic heart disease, chorea and cardiac infarction, it likewise is encountered as a complication of such common infectious diseases as pneumonia, scarlet fever, tuberculosis and septicemia. At times it may develop in cases of empyema or other local infections, especially of the mediastinum, as a result of direct extension. Occasionally it is observed in patients with gout and diabetes, and at times it is seen as a terminal event in

chronic nephritis and uremia. In some cases it is associated with chronic inflammation of the pleura and peritoneum, as in multiple serositis or Pick's disease.

Inflammation of the pericardium inevitably results in a fibrinous, serofibrinous or purulent exudate within the pericardial sac. In pneumonia and other acute severe infections the exudate is of a purulent type, while in the other conditions mentioned it is usually of a fibrinous or serofibrinous nature. In the absence of much effusion, the pericardial sac may be obliterated in part or completely as the result of adhesions, such a process usually being the result of rheumatic infection in childhood. Occasionally such obliteration may follow a tuberculous infection. Adhesions resulting from acute pericarditis may involve neighboring structures, especially the posterior mediastinum, pleurae and diaphragm. In such cases, signs of venous congestion are present and the condition is referred to as chronic mediastinopericarditis, or constrictive pericarditis.

It is unfortunate that a peculiar lack of symptoms frequently causes acute pericarditis to be overlooked. A suspicion of it may not be aroused because it is invariably a secondary process and such symptoms as it might create, such as precordial pain, dyspnea, palpitation and weakness, are apt to be masked by those of the primary disease. It is obvious under the circumstances that pericarditis will be recognized more frequently than it is only by one maintaining a constant vigilance and an awareness for its presence in all the more common conditions previously referred to in which it may be expected to occur.

Careful attention to physical signs affords the only reliable means of diagnosis. As stated before, there are no particularly significant symptoms characteristic of the disease in its early development. Even precordial pain, an acknowledged uncertain symptom, may be absent. In the fibrinous stage, a certainty that the disease exists may be felt only if the characteristic "to and fro" friction is audible. The friction may be heard anywhere over the precordium but particularly is to be found to the left of the sternum in the fourth and fifth interspaces. It characteristically appears to be close to the surface and corresponds closely to the systole and diastole of the heart. It is notoriously evanescent, lasting for several weeks or perhaps but a few hours, and may recur at most unexpected intervals. Once a friction rub has been heard, repeated careful search should be made for effusion. Roentgenologic examinations should be employed, if practical, as soon as the diagnosis of pericarditis has been suspected or established. By this means the earliest evidence of effusion may be secured. As the effusion accumulates, definite physical signs make their appearance and x-ray examination reveals a characteristic "water bottle" shape of the cardiac shadow. That an effusion is purulent may be suggested by the nature of the primary illness, such as

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From the Medical and Surgical Departments of the Philadelphia General, Mount Sinai and Jewish hospitals.

pneumonia or empyema, an increased elevation of the temperature, and increasing leukocytosis. Chills, sweats and a rapidly developing anemia likewise indicate the presence of a purulent process and the necessity for paracentesis. If pus is shown to be present, immediate pericardiotomy is advisable.

In chronic adherent pericarditis, evidence of venous congestion is shown by increased venous pressure, engorgement of the cervical veins, enlargement of the liver and spleen, and ascites. When the pericardium is thickened and adherent and the sac is obliterated, the heart is smaller than normal. According to Willius,¹ calcification in the pericardium is found in about 10 per cent of cases of adherent pericarditis. In chronic mediastinopericarditis the heart is enlarged, presumably the result of the usually associated valvular disease rather than the handicap of surrounding adhesions. As the result of extrapericardial adhesions, such phenomena as systolic retraction in the region of the apex or posteriorly in the eleventh and twelfth interspaces, fixation of the apex beat or of the diaphragm and a pulsus paradoxus are usually to be observed. In any type of



Fig. 1 (case 4).—Case of tuberculous pericarditis. Typical water bottle shape of an effusion in the pericardial sac.

pericarditis, the assistance offered by x-ray examination may be found indispensable, especially in cases under surgical consideration.

While a serofibrinous effusion may occasionally require such a minor surgical procedure as paracentesis, it is the purulent effusion and the chronic adhesive type of pericarditis, requiring more radical surgery, that engages our attention in

this presentation. In the case of a purulent effusion, prompt recognition of the condition and adequate evacuation offer the only means of saving the patient's life. In chronic adherent pericarditis, a proper appreciation of the mechanical difficulties under which the heart is laboring and competent surgical correction of these difficulties may be expected to afford a more comfortable and useful existence for the patient than can otherwise be attained.

In a scholarly review of the literature on pericarditis, White² in 1935 quoted Galen (160 A. D.), Richard Lower (1669), Lancisi (1728), Morgagni (1760), Chevers (1842) and Wilks (1870) as all having recognized the existence of this disease, their description comparing favorably with those of modern authors. Of fifteen cases of chronic constrictive pericarditis, White in 1925 reported the first surgical cure in America in a girl 15 years of age. This patient has remained in excellent health for seven years. In these fifteen cases the symptoms were typical of adhesive pericarditis; that is, dyspnea, edema of the feet and ankles, edema of the face and upper part of the body, and ascites.

After the paper by Wilks the Germans became the leaders in the study of chronic constrictive pericarditis, and such men as Pick in 1896, Rehn in 1920, and Sauerbruch, Springer and Schmieden in 1923 and 1925 did important work in connection with this disease. The palm of distinction, however, belongs to Delorme,³ who as early as 1898 urged pericardial resection or decortication. Although Delorme was one of the first to advise excision of adhesions or decortication of the heart, he never practiced it himself.

Brauer⁴ in 1902 advised removal of the bony pericardium so that the heart would strike soft structures instead of a solid wall. This operation is of particular benefit in patients suffering from massive hypertrophy of the heart. In cases of adhesive pericarditis, however, the Brauer operation does little good unless it is supplemented by decortication. This opinion is confirmed by Bourne, Cutler, Beck,⁵ Poynton and Hirschfelder, Schmieden⁶ and Trout,⁷ who state that the operation of cardiolysis with decortication is generally beneficial.

Smith and Liggett⁸ in 1928 analyzed 107 cases of cardiolysis, which showed a mortality within three months of 20.6 per cent; 84 per cent of the patients had improved, 29 per cent becoming self supporting.

The Brauer operation owes its popularity to the fact that it is less hazardous. Beck stresses the fact that while the Brauer operation is less dangerous it attacks only the peripheral terminus of the cicatrix on the thoracic wall and that pericardiectomy, which was first performed by Hallopeau in 1910, is the more satisfactory operation. In Beck's estimation the Brauer operation is obsolete.

In 1934 Beck and Cushing⁹ discussed the subject of pericardial disease very fully. They described two different groups of symptoms, depending on whether the pressure is acute or chronic. Acute intrapericardial pressure is caused by hemorrhage, rupture of the heart or rapidly progressing suppurative infection. The clinical picture gives evidence of engorged veins, raised venous pressure, failure of arterial circulation, unconsciousness and faint heart signs. In the second type, chronic intrapericardial pressure results from the presence of effusion or adhesions such as follow a tuberculous infection. Here the clinical picture shows rise of high venous pressure, large liver and spleen, ascites and all the symptoms coincident with adhesive pericarditis. They report nine cases, six in which operation was done, with two deaths.

A year later, in 1935, Beck¹⁰ found that all intrapericardial lesions result in acute or chronic compression of the heart. Some of these cases give no symptoms and therefore cannot be recognized during life. The combination of extrapericardial and intrapericardial adhesions presents definite symptoms. In acute cardiac compression pericardiotomy should always be performed to determine the cause, whereas in chronic cardiac compression due to adhesions the Delorme decortication is advised.

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2. White, P. D.: Guy's Hosp. Rep. 85: 264-273 (July) 1935; Lancet 2: 539 (Sept. 7), 597 (Sept. 14) 1935.

3. Delorme, Edmund: Gaz. d. hôp. 71: 1150, 1898.
4. Brauer, Ludolph: Münch. med. Wchnschr. 49: 1072, 1902; Centralbl. f. Chir. 30, 1903.
5. Beck, C. S.: The Surgical Treatment of Pericardial Scar, J. A. M. A. 97: 824 (Sept. 19) 1931.
6. Schmieden, Victor: Surg., Gynec. & Obst. 43: 89 (July) 1926.
7. Trout, H. H.: Release of Pericardial Adhesions, J. A. M. A. 96: 295 (Jan. 24) 1931.
8. Smith, E. S., and Liggett, H. S.: Proc. Inter-State Post-Grad. M. Assemb. North America (1928) pp. 489-502, 1929.
9. Beck, C. S., and Cushing, E. H.: Circulatory Stasis of Intrapericardial Origin, J. A. M. A. 102: 1543 (May 12) 1934.
10. Beck, C. S.: Two Cardiac Compression Triads, J. A. M. A. 104: 714 (March 2) 1935.

Winkelbauer and Schur¹¹ advocate decortication of the left ventricle, especially when edema is present. They think it inadvisable to complete the operation in one stage. They perform, in the first stage, Brauer's operation for cardiolytic and object to the removal of calcified areas because the puncture of the left ventricle is impossible to close. In their report of eight cases, one patient was completely cured, three died, and there was improvement of the condition in the rest of the patients.

Griswold¹² in 1936 reported one case of pericardiectomy. Symptoms followed Beck's triad; namely, high venous blood pressure, ascites and a small quiet heart. He mentions the use of the roentgenkymogram as supplying irrefutable evidence of the reduced amplitude of cardiac pulsation and the throttling effect of the disease on the heart. After operation it showed the unmistakable benefits of pericardiectomy.

It will be noted that no attempt was made in the cases reported to control the rhythm of the heart at operation by the intrapericardial administration of drugs or to prevent an anticipated disturbance of rhythm by the preoperative administration of drugs, as has been referred to by Mautz.¹³ It would seem desirable, nevertheless, to consider such therapy in patients undergoing cardiac surgery.

REPORT OF CASES

CASE 1.—B. G., a white girl, aged 14 years, admitted to Mount Sinai Hospital June 1, 1925, was referred by Dr. H. B. Shmookler for operation. The primary diagnosis was aortic and mitral valvulitis and adherent pericarditis. The chief complaints were dyspnea, palpitation, weakness and pain. The patient had two previous admissions for heart disease. There was marked pulsation of the vessels in the neck; the apex beat was in the sixth interspace, 1 inch (2.5 cm.) outside the nipple line. Sounds were loud but not clear. There was no edema or cyanosis. A diagnosis of pericardial effusion was made, confirmed on the nineteenth by the cardiologist. X-ray films showed marked enlargement of the cardiac shadow, particularly on the left side. There was a strong suggestion of pericardial effusion.

The patient was readmitted to the hospital Oct. 29, 1926. On the second admission a history was obtained that she had been in the hospital four years before complaining of dyspnea and precordial distress of two years' duration. She had had scarlet fever and soon afterward typhoid.

Physical examination revealed a markedly enlarged heart with a double murmur at the apex and a systolic murmur at the base.

She had been admitted to the hospital a second time Sept. 10, 1923, with the same symptoms. The heart at this time was much larger. She was again discharged after successful treatment.

She was admitted a third time June 1, 1925, with the same complaints as previously. She had fever at this time and signs indicated pericarditis with effusion, which was confirmed by x-ray examination.

Blood cultures were sterile. The blood count showed mild polymorphonuclear leukocytosis. The Wassermann reaction and urinalysis were negative.

She was discharged again with the pericardial effusion entirely gone. On the fourth admission, Oct. 29, 1926, she was markedly dyspneic. The chest showed bulging on the left side around the precordium, with diffuse pulsations all over the precordium. The heart was greatly enlarged in all diameters. Murmurs were the same as on previous examinations. The blood pressure was 180 systolic, 130 diastolic. The heart occupied more than two thirds of the entire chest. After surgical consultation it was decided to resect several ribs to provide more room for the heart.

The diagnosis was adherent pericarditis; pancarditis with marked pericardial effusion; extensive hypertrophy with terminal dilatation, and terminal pneumonia.

At the operation, Nov. 9, 1926, the third, fourth and fifth ribs on the left side were resected and the wound was closed with clips. The pulse and respiration rate were increased. The wound healed well.

December 3 the patient was allowed out of bed in a chair. December 7 the temperature began to rise. The patient had an attack of nosebleed. The temperature ran an irregular course. From this time on the patient started to decline rapidly and eventually succumbed on December 27 from cardiac failure.

Summary.—A girl, aged 14 years, gave a history of scarlet fever and typhoid in childhood. She was practically hospitalized off and on for four years prior to operation. Scarlet fever was probably the cause of the pericardial infection. She had a huge heart. The third, fourth and fifth ribs were resected but the pericardium was not stripped. She was able to get out of bed twenty-four days after operation. Forty-seven days after operation she died of cardiac failure.

CASE 2.—J. J., a Negro boy, aged 12 years, admitted to the Jewish Hospital, Jan. 9, 1934, was referred by Dr. J. C. Doane for operation. The primary diagnosis was pericarditis and polyserositis. The chief complaint was dyspnea and pain over the precordium, cough and palpitation. The sickness dated from September 1933 following a "cold." He was told at that time that he had heart disease and an enlarged liver. Edema was present. He had had several aspirations of the chest and abdomen in the Philadelphia General Hospital, where he had stayed four months. He had had whooping cough, measles and chickenpox. He was a fairly well developed boy, though somewhat emaciated. The apex beat could not be felt; sounds were distant. The liver was palpable.

January 11 bilateral thoracentesis was done, yielding 14 ounces (420 cc.) from the right pleural cavity and 16 ounces from the left pleural cavity.

The blood chemistry was negative.

January 13, the Mantoux test was positive.

January 18, a pericardial tap was done and 15 cc. of turbid fluid was obtained. The cardiologist reported no definite evidence of myocardial disease, although there was some interference with function of the heart muscle.

X-ray examination confirmed the diagnosis of a huge heart with pericarditis and effusion.

Up to March 6 the pleural cavities were tapped almost daily. The diagnosis was rheumatic pancarditis, mitral stenosis and regurgitation, aortic regurgitation and pulmonic regurgitation.

March 6 the first stage of cardiolytic was performed. Portions of the third and fourth ribs were resected under local anesthesia.

March 21 the general condition seemed to be much better. There was little evidence of fluid in the pleural sacs and abdominal cavity.

April 3 the second stage of cardiolytic was done under local anesthesia. At this time the second and fifth ribs were removed. The tissue over the pericardium was incised and the adhesions of the visceral pericardium were manually separated. Excision of the pericardium was now performed. The inflammatory tissue in some places over the anterior surface of the heart was 1 inch (1.27 cm.) thick. The incision was then enlarged and as much as possible of the inflammatory tissue was excised: the anterior surface of the heart was freed from the parietal pericardium and exposed about 4 inches (10 cm.) in a vertical direction and about 3 inches (7.6 cm.) in the opposite direction.

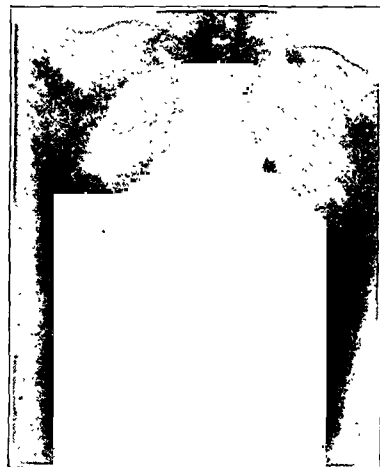


Fig. 2 (case 5).—Case of purulent pericarditis and empyema, postpneumonic.

11. Winkelbauer, A., and Schur, M.: *Med. Klin.* 31: 1231 (Sept. 20) 1935.

12. Griswold, R. A.: *Chronic Cardiac Compression Due to Constricting Pericarditis*, J. A. M. A. 106: 1054-1057 (March 28) 1936.

13. Mautz, F. R.: *Thoracic Surg.* 5: 612-628 (Aug.) 1936.

April 13 the child appeared to be clinically worse, respiration was labored, the pulse was weak, and the sclera were icteric. The child became gradually worse and died suddenly April 15.

The pathologic examination, by Dr. Levine, revealed numerous giant cells, early caseation necrosis and typical tubercle formation. Some sections showed a considerable degree of calcification. There was also an extensive degree of fibrosis. The diagnosis was tuberculous pericarditis.

Summary.—This patient was a very sick child when admitted to the Jewish Hospital, having had a previous admission in the



Fig. 3 (case 5).—Lateral view

CASE 3.—F. S., a white youth, aged 17, admitted to the Philadelphia General Hospital, Sept. 9, 1935, was referred by Dr. Boles for operation. The primary diagnosis was rheumatic pancarditis and rheumatic adherent pleuropericarditis. The chief complaint was pain over the heart, both shoulder joints and elbow joints. The patient had been discharged from the hospital Aug. 9, 1935, having recovered from an attack of acute rheumatic fever, during which acute pericarditis and pneumonia had developed. He had had three prior attacks of acute rheumatic fever but had been comparatively well, except for terrific palpitation and dyspnea, until ten days previous to admission, when he began to have severe precordial pain, which was greatly aggravated by any movement or deep breathing.

The significant facts in this case were as follows: temperature 102 F., pulse 130, respiration rate 32, blood pressure: 132 systolic, 40 diastolic. The patient appeared extremely ill; he was dyspneic and cyanotic in the lips and nail beds. There was no remarkable engorgement of the cervical veins. The heart was tremendously overactive, the entire bed literally vibrating from the tumultuous action. The entire front of the chest was extremely tender. The cardiac area of dullness extended deeply into the left axilla and there were signs of mitral and aortic valvular disease. The abdomen was tender. The liver and spleen were not palpable. There was no edema.

X-ray examination showed the transverse diameter of the heart to be slightly enlarged. The trachea was in the midline. There was slight enlargement of the left auricle. The heart was pulled over to the left.

The cardiogram showed notching of the T waves in leads 1 and 2 and slight notching of the ventricular complexes in the direct leads. Direct and indirect leads showed a slight left axis deviation.

Urinalysis was negative except for a trace of albumin. The blood count revealed hemoglobin 15 Gm., red blood cells 5,010,000, white blood cells 15,500, polymorphonuclears 80 per cent, lymphocytes 20 per cent. The Kahn reaction was negative. The blood sugar was 77 mg. and blood urea 13 mg.

A diagnosis of rheumatic pancarditis with pleuropericardial adhesions was made. Because of severe, intractable precordial pain that had persisted for more than three months, cardiomyolysis was advised.

Jan. 31, 1936, cardiomyolysis and pericardiectomy were performed under endotracheal gas, oxygen and ether anesthesia. A curved incision was made over the cardiac region. The fourth and

fifth ribs were exposed. The periosteum was reflected an 3 inches (7.6 cm.) was removed from the anterior portion of these ribs. The parietal pericardium was opened and numerous adhesions were found between the heart and this membrane. These were freed digitally and a section of anterior parietal pericardium about 10 cm. in diameter was removed and the wound closed.

The pathologic examination, by Dr. H. P. Custer, revealed dense fibrous tissue and a minor degree of residual chronic inflammation of nonspecific type, the exudate being largely lymphoplasmocytic; activity of rheumatic inflammation was apparently subsiding. The pathologic diagnosis was chronic proliferative pleuropericarditis.

Summary.—This case was one of typical rheumatic pericarditis. The patient was in the hospital for six months. Prior to his operation he complained almost continuously of severe precordial pain that required the constant use of narcotics. The operation, which was a Delorme decortication of the pericardium, entirely relieved the pain. After a stormy convalescence during which pneumonia developed, the patient made such a favorable recovery that he was permitted to leave the hospital and go home. About two months later he died suddenly while walking upstairs. A postmortem examination was not made.

CASE 4.—C. S., a Negro, aged 39, admitted to the Philadelphia General Hospital May 2, 1936, was referred by Dr. Boles for operation. The primary diagnosis was tuberculous pericarditis with effusion. The chief complaint was fever. The patient had been perfectly well until Sept. 4, 1935. He had been drinking heavily and he was suddenly seized with precordial pain and palpitation and dyspnea. The point of greatest pain was to the left of the sternum in the fifth interspace. Attacks of pain, palpitation and dyspnea recurred at irregular intervals, usually being induced by exertion, until April 31, 1936, when he had an unusually severe attack, the pain this time being referred to the back of the chest on the left side accompanied with fever. The pain lasted about two hours but the fever persisted and he was advised to come to the hospital.

On admission the patient appeared very toxic and had a temperature of 103 F. The pulse was 120 and respiration rate 25. The blood pressure was 110 systolic, 70 diastolic. Some dyspnea but no cyanosis was present. The heart was very much enlarged both to the right and to the left. The heart sounds were regular but somewhat muffled; no murmurs were detected. A fine "to and fro" friction sound was audible over the precordial area. A paradoxical pulse was present. There was engorgement of the veins in the neck. The liver and spleen were not palpable. There was no edema.

The urinalysis was negative. The blood count revealed hemoglobin 8 Gm., red blood cells 2,920,000, white blood cells 6,100, polymorphonuclears 82 per cent, lymphocytes 12 per cent, transitionals 6 per cent. The Kahn reaction was negative. Blood sugar was 123 mg. and blood urea 13 mg.

May 4, x-ray examination showed considerable widening of the transverse diameter of the heart and supracardiac shadow. The cardiothoracic ratio was 24 to 30.5. The entire cardiac silhouette had the "bottle" shape of pericarditis with effusion. The left diaphragm was obliterated and the right was in normal position. There was no evidence of tuberculosis in the lungs.

The cardiogram showed the ST intervals elevated in leads 2, 3 and 6 and depressed in lead 4. These alterations of the ST intervals were suggestive of pericarditis.



Fig. 4 (case 5).—Small amount of fluid in pericardial cavity. Parietal pleura much thickened. Heart small.

May 6, pericardial paracentesis was done and 270 cc. of bloody serous fluid was obtained. The patient was much more comfortable. Friction and splashing sounds over the precordium were still present, associated with high, irregular fever.

May 8, the cardiogram showed less evidence of pericarditis. There was depression of the ST intervals in leads 4 and 5. The previous slight elevation of these intervals in leads 2 and 6 was not present.

May 22, pericardial paracentesis was repeated, 450 cc. of bloody serous fluid was removed and 250 cc. of air was injected. Effusion was negative for the tubercle bacillus.

May 29, x-ray films showed no diminution of the size of the heart shadow. The patient now had a high, continuous fever and his general condition was failing. A guinea-pig that had been injected with a portion of exudate first removed was reported to be in a healthy condition after eight weeks. Because of the patient's downward course, pericardiotomy was advised. The diagnosis was pericarditis of unknown etiology, probably tuberculous.

Operation was performed June 2 under cyclopropane anesthesia. A curved 10 cm. incision was made with the convexity directed medially over the precordium. The skin flap was turned back, exposing the fourth, fifth and sixth left costal cartilages. The fifth and sixth costal cartilages were removed. Definite fulness was noted. An exploratory needle was introduced and a thick dark red fluid was obtained. The pericardium was incised and a large amount of the same fluid gushed out. The examining finger then noted that the surface of the heart was studded with small nodules. A small piece of parietal pericardium was incised for biopsy and its free surface had the same nodular appearance. No adhesions were noted anteriorly. The wound was closed with a rubber dam in the wound. The patient continued to do well after the operation. The temperature remained elevated for some time.

The pathologic examination, report by Dr. Custer, revealed that the pericardium was the seat of chronic proliferative inflammation characterized by tubercle formation and caseation necrosis. The surface was flecked with fibrin. The pathologic diagnosis was tuberculous pericarditis.

June 3, culture from the effusion yielded no growth. The smear was positive for acid-fast rods, morphologically Koch's bacillus.

June 19, x-ray examination revealed no difference in the size of the heart as compared to previous examinations. There were pleuropericardial adhesions to the left diaphragm.

The patient showed no improvement following the operation. He became gradually weaker and died August 5, two months after the pericardiotomy.

Summary.—This case proved interesting because of the doubtful character of the infection. Although tuberculosis of the pericardium was suspected, inoculation of a guinea-pig showed no changes eight weeks afterward. The fourth, fifth and sixth costal cartilages were removed. When the pericardium was incised and the finger inserted in the sac, numerous elevations were felt. Because there had been no positive evidence of tuberculosis, it was thought that the pericarditis might be of a malignant type. A piece was excised. Dr. Custer, the pathologist, reported one tubercle found and some caseation necrosis. The patient finally died of miliary tuberculosis two months following the operation. Had we had positive evidence prior to operation that the patient was tuberculous, we never would have resorted to drainage. Tuberculous effusions in any part of the body should not be drained because of the danger of mixed infection.

CASE 5.—J. M., a white man, aged 39, admitted to the Philadelphia General Hospital March 26, 1936, was referred by Dr. Boles and Dr. Hubley R. Owen for operation. The primary diagnosis was lobar pneumonia type I, pneumococcal bacteremia, and pneumococcal pericarditis with purulent effusion. The chief complaint was cough and pain in the chest. The patient was well until March 21, 1936, when a high fever and a cough developed following by a chill a few days later. He then complained of a severe sharp pain, which was aggravated by coughing over the entire right side of the chest. On admission four days after onset of illness the significant conditions were as follows: lobar pneumonia, the right, middle and lower lobes being involved; temperature 102 F., pulse 120, respiration rate 35; blood pressure 120 systolic, 60 diastolic. The pneumonia was type I and was associated with infection of the blood

stream. Slight cyanosis and dyspnea were present. Herpes labialis was present. Examination of the heart revealed nothing unusual.

Urinalysis was negative except for albumin. The blood count revealed white blood cells 47,900, polymorphonuclears 88 per cent, lymphocytes 4 per cent, large mononuclears and transitionals 8 per cent. The Kahn reaction was negative; blood sugar was 134 mg. and blood urea 25 mg.

The patient was tested for serum sensitivity and, being negative, was given polyvalent antipneumococcus serum. Serum was administered at intervals until March 27, apparently with some improvement.

March 28, pericardial friction was noted, the patient complaining of severe precordial pain. A paradoxical pulse was present.

March 30 a cardiogram revealed considerable elevation of the ST intervals in leads 1 and 2. While the origin of the ST line was slightly away from the base line in leads 4 and 5, it was more marked in lead 6. "These are the findings we have encountered in pericarditis. The usual etiology in the instances in which we have seen these changes has been pneumococcal, uremic or rheumatic. We have so far not seen the change to a marked degree in tuberculous pericarditis."

March 31 the cardiac area of dullness increased to the left. There was slight cyanosis but increasing dyspnea and weakness. The leukocyte count, which previously had dropped to 34,600,

was now 58,000. A diagnosis of acute suppurative pneumococcal pericarditis was made. X-ray examination revealed pericarditis with effusion. Pericardial paracentesis was done and 15 cc. of a yellowish green exudate was secured. Auricular fibrillation was present.

April 3 there was pericardial effusion: cells per cubic millimeter, 9,600; polymorphonuclears, 98 per cent; lymphocytes, 1 per cent; endothelial cells, 1 per cent; gram-positive diplococci.

April 3 the cardiogram revealed auricular flutter present, with a 2:1 and 3:1 auriculoventricular heart block. The ST intervals were elevated in leads 1 and 2.

Paracentesis of the precordium was repeated and 330 cc. of exudate recovered with immediate relief of dyspnea and weakness.

April 4 paracentesis of the precordium was repeated and 540 cc. of purulent exudate was removed. Later in the day 720 cc. of exudate was removed.

April 5, 120 cc. of purulent exudate of thicker consistency was removed. X-ray examination revealed still considerable fluid present in the pericardial sac. Pericardiotomy was advised.

April 6, under local anesthesia, a curved incision was made over the lower portion of the sternum. A flap of subcutaneous tissue and skin was turned to the side. The fourth and fifth ribs were removed 2 inches from the sternum, and the pericardium was exposed. Aspiration revealed pus. An incision was made in the pericardium and a large amount of pus was obtained. Pus drained continuously from the pericardial sac. Irrigation was instituted with various antiseptic solutions, including diluted solution of sodium hypochlorite. At times there seemed to be a diminution in pus, but nevertheless it continued in varying amounts.

April 7 the T waves were inverted in leads 1 and 2. "In the presence of pericarditis this finding is to be interpreted as due to the outer portion of the myocardium, the result of extension of the pericardial inflammatory process."



Fig. 5.—No fluid in pericardial cavity. Fluid level in right pleural cavity.

April 10, leukocytes numbered 10,900, with polymorphonuclears 76 per cent, lymphocytes 6 per cent, monocytes 18 per cent and eosinophils 2 per cent.

April 14 the sutures were removed. The Dakin tube was removed.

April 21, x-ray examination revealed no fluid demonstrable in the pericardial sac.

April 29 there were signs of empyema in the left side of the chest. Under local anesthesia a trocar and cannula were introduced in the eighth interspace of the posterior axillary line on the left side and pus was obtained.

April 30, 1,700 cc. of purulent exudate was removed from the left pleural cavity.

May 3 the patient seemed to be holding his own, with improved drainage and daily transfusions. Suppurative pneumonitis was suspected on the right side, confirmed by x-ray examination.

The course was rapidly downward from this time on and the patient died May 7.

Summary.—This case is representative of an acute suppurative type of pericarditis, complicating lobar pneumonia. The operation had to be done with the patient in a sitting position under local anesthesia. He did not remember anything concerning his transfer to the operating room or the operation. After excision of the fourth and fifth costal cartilages the pericardium was incised and a large amount of pus exuded. The patient had a stormy convalescence requiring later a thoracotomy, closed method, for pleural empyema.

Pericardiotomy was definitely indicated in this case because of the presence of a large suppurative effusion in the pericardial sac. The patient withstood the operation well and showed striking improvement following it; despite a subsequent thoracotomy for a left sided encapsulated empyema twenty-four days after the pericardiotomy, it was thought he might recover. The development of interlobar empyema and suppurative pneumonitis in the right lung was overwhelming and he died one month following the pericardiotomy.

Postmortem Examination.—The heart weighed 400 Gm. The parietal pericardium was greatly thickened, measuring from 5 to 10 mm. in places. Thickening was due to fibrous-like tissue, presumably recently organized inflammatory exudate. The openings of the vena cava seemed to be constricted by adherent and greatly thickened surrounding pericardium. There was no evidence of hypertrophy. The histologic diagnosis was acute and organizing pericarditis, myocardial degeneration and pericardial tamponade due to a thickened pericardium.

The right lung showed obliterative fibrous pleural adhesions and encapsulated empyema at the base with interlobar empyema between the middle and lower lobes. The left lung showed obliterative fibrous pleural adhesions with encapsulated empyema at the base.

CONCLUSIONS

Three patients in the Philadelphia General Hospital and one each in the Mount Sinai and Jewish hospitals had been sick from several months to several years. The cases presented illustrate the necessity for prompt radical drainage in suppurative pericarditis, of nonsurgical intervention in tuberculous pericarditis and of earlier operation in chronic mediastinopericarditis.

A close cooperation of the internist, roentgenologist and surgeon may be expected to lead to greater accuracy in the diagnosis of pericarditis and its complications and thereby to early effective surgical treatment in properly selected cases.

1738 Pine Street.

The International Medical Congress.—Thirty-two years have elapsed—a full generation—since this congress, under the distinguished leadership of Sir James Paget, last gathered in London. Among the participants on that occasion were five of the immortals in the history of the medical sciences: Huxley—naval surgeon, zoologist, palaeontologist, educator, philosopher, public servant; Virchow—pathologist, anthropologist, archaeologist, statesman and sanitarian; Pasteur the chemist, Lister the surgeon, and Koch the bacteriologist—among the foremost contributors of all time to the welfare of their kind.—Cushing. Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

INTRA-UTERINE RESPIRATORY MOVEMENTS OF THE HUMAN FETUS

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AND

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The present observations represent an attempt to determine whether the human fetus shows spontaneous respiratory movements within the uterus or whether, as is generally believed, fetal apnea persists throughout prenatal life until interrupted at birth by the first breath.

In recent experiments with rabbits, cats and guinea-pigs, we¹ found that, instead of a state of prolonged apnea before birth, the fetal respiratory system shows long periods of automatic activity. When one now

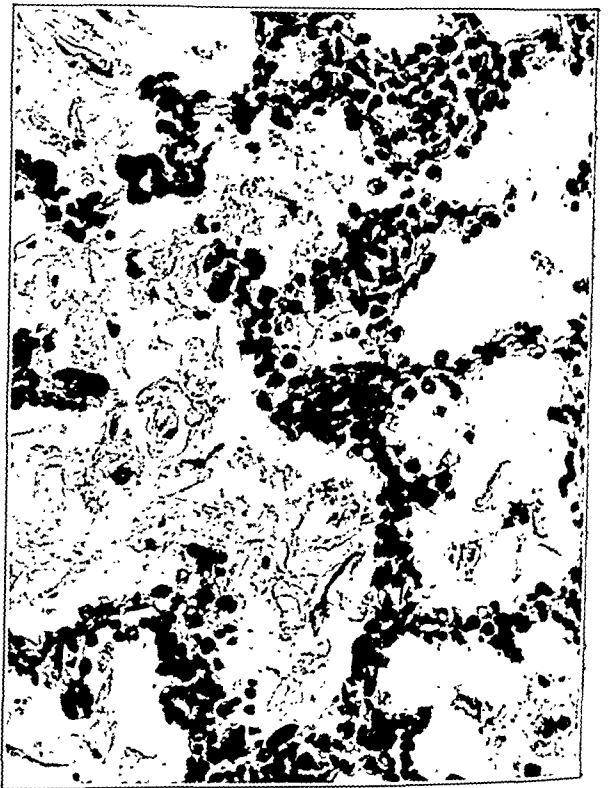


Fig. 1.—Alveoli of fetal lung at term showing cells and debris introduced with the current of amniotic fluid entering the lung as a result of intra-uterine respiratory movements. The rabbit fetus was observed to be breathing within the amniotic fluid. The trachea was clamped and fixation in solution of formaldehyde completed within the uterus to avoid the breathing of air. The striking dilatation of the alveoli is related to intra-uterine respiration and is entirely independent of breathing air; $\times 300$.

turns to the human fetus, the question is whether or not man is like the other species studied or stands apart.

Observations of the fetal movements transmitted through the abdominal wall were made in a series of women near term. With the woman in a recumbent position on her back, careful inspection of the abdomen was carried out. Apart from the general body movements of the fetus there could be recognized unmistakably spontaneous fetal movements, which continued at

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1. Snyder, F. F., and Rosenfeld, Morris: Direct Observation of Intra-Uterine Respiratory Movements of the Fetus and the Role of Carbon Dioxide and Oxygen in Their Regulation. *Am. J. Physiol.* 119: 153 (May) 1937.

a regular rhythm for many minutes. The movements were integrated in a pattern that was characteristic of respiration. They were identical with the rhythmic fetal movements that are seen in other species in which there is available experimental proof of their respiratory nature.

In order to obtain objective data concerning the rate and pattern, the movements were recorded by aid of motion pictures. Analysis of these records showed a distinctive type of excursion of the abdominal wall, which occurred with regular rhythm. The excursions were clearly distinguished as independent movements superimposed on those resulting from maternal respiration. Differentiation was easily made in view of the marked difference in rate, the ratio being approximately three fetal respirations to one of the mother. Pulsations transmitted from the abdominal aorta were taken into consideration as a source of confusion but were readily eliminated. Record of the maternal pulse taken simultaneously with the respiratory movements showed that they were completely dissociated in rate. In addition, the gross characteristics, such as localization and amplitude, of the excursions permitted unequivocal differentiation.

Two chief types of fetal respiratory movements were observed. One type is characterized by a rapid rate, i. e., about 60 per minute, and a shallow excursion. The other type, which is less commonly seen, appears as a sudden deep excursion recurring at a slower rate; i. e., 15 per minute. The former resembles thoracic respiration, while the latter resembles abdominal breathing. These two types of movements were also easily distinguished in animal experiments in which the fetus of the rabbit could be directly viewed through the transparent uterine wall.

In late pregnancy the woman herself may become aware of rhythmic fetal movements, in contrast to irregular, general body movements. Patients have voluntarily made inquiry regarding the significance of fetal movements which they described as a "flutter" and which occurred usually soon after lying down and persisted for a period of minutes. We were easily able to correlate the patient's subjective description with the actual observation of transmitted fetal respiratory movements.

A clue to the significance of fetal respiration is afforded by the finding of cells and debris characteristic of amniotic fluid scattered throughout the lungs during intra-uterine life.² In figure 1 the contents are shown of alveoli of the lung of a rabbit fetus that was observed to be breathing within the uterus. That the breathing of amniotic fluid is a normal function of fetal respiration may be clearly illustrated by experiment.³ In a rabbit in which the uterus was exposed by laparotomy, india ink was injected into the amniotic sac of fetuses that were seen to be breathing, as well as in littermates in which breathing was inhibited by a previous injection of pentobarbital sodium. Examination of the lungs one or more minutes after addition of the ink to the amniotic fluid showed the carbon particles in the alveoli throughout the lungs of the fetuses which were breathing, while the lungs of apneic fetuses contained none (figs. 2 and 3).

2. Farber, Sidney, and Sweet, L. K.: Amniotic Sac Contents in the Lungs of Infants, *Am. J. Dis. Child.* 42:1372 (Dec.) 1931.

3. Wislocki, G. B.: Experimental Studies on Fetal Absorption, Contributions to Embryology, Carnegie Institution of Washington 11:47, 1920. Snyder, F. F., and Rosenfeld, Morris: Breathing of Amniotic Fluid as a Normal Function of Fetal Respiration, *Proc. Soc. Exper. Biol. & Med.* 36:45 (Feb.) 1937.

COMMENT

Respiration is not initiated in the child at birth but extends far back into embryonic life. Instead of a state of complete apnea during intra-uterine life, the human fetus shows spontaneous respiratory movements for periods lasting many minutes.

The capacity of the human fetus to show respiratory movements within the uterus for brief intervals was recognized by Schultze.⁴ Ahlfeld⁵ noted that the human fetus exhibits rhythmic respiratory movements in the latter part of pregnancy. Weber,⁶ a student of Ahlfeld, published a full description with tracings of excursions transmitted to the abdominal wall of the mother. Reifferscheid⁷ confirmed these observations. Both Ahlfeld and Reifferscheid stated that fetal respiration does not normally result in the entrance of amniotic fluid into the alveoli. Other investigators among his contemporaries vigorously disagreed with Ahlfeld's inference that the movements which were seen indirectly through the abdominal wall represented fetal respiration.⁸ In more recent years Ahlfeld's view has been disregarded because at operation direct observation of the fetus within the uterus failed to reveal rhythmic respiratory movements. Apnea has been regarded as

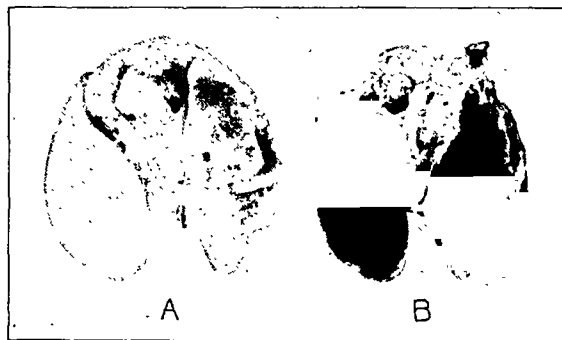


Fig. 2.—A, lung of apneic fetus. B, lung of fetus breathing within the uterus. In both fetuses india ink was introduced into the amniotic fluid twenty minutes before the animal was killed. Entrance of stained amniotic fluid into B and the normal appearance of A demonstrate that intra-uterine respiratory movements result in the breathing of amniotic fluid; $\times 1/2$

the normal state of the fetus,⁹ and the cause of the initiation of respiration has been sought in the changes attending birth.¹⁰

Respiratory failure of the new-born, or asphyxia neonatorum, must be regarded as a suppression of previous activity rather than failure of some new mechanism to begin functioning at birth. In the apneic new-born child the question is not what causes the first breath but rather what factors have been superimposed to suppress the continuation of respiratory movements. With regard to the causes of respiratory failure, it may be emphasized that the fetal respiratory system before birth has been demonstrated to have a peculiar sensitivity to the depressant effect of anoxemia and narcosis.¹ Both of these factors belong to the period

4. Schultze, B. S.: *Der Scheintot Neugeborener*, Jena, 1871.

5. Ahlfeld, F.: Die intrauterine Tätigkeit der Thorax- und Zwerchfellmuskulatur; Intrauterine Atmung, *Monatsschr. f. Geburtsh. u. Gynäk.* 21:142, 1905.

6. Weber, H.: Ueber physiologische Atmungsbewegungen des Kindes im Uterus, Inaugural dissertation, Marburg, 1888.

7. Reifferscheid, K.: Ueber intrauterine im Rhythmus der Atmung erfolgende Muskelbewegungen des Fötus, *Arch. f. d. ges. Physiol.* 140:1, 1911.

8. Olshausen, R.: Ueber den ersten Schrei, *Berlin. klin. Wchnschr.* 31:1079, 1894. Runge, M.: Ahlfeld und seine intrauterine Atmung, *Arch. f. Gynäk.* 75:199, 1905.

9. Howell, W. H.: *A Textbook of Physiology*, Philadelphia, W. B. Saunders Company, 1936, p. 743.

10. Barcroft, Joseph: Respiratory and Vascular Changes in Mammals Before and After Birth, *Lancet* 2:647 (Sept. 21) 1935.

preceding delivery. To deal with them at that time by efforts to maintain adequate oxygenation,¹¹ and caution in the choice and use of anesthetic agents would be more effective than later attempts at resuscitation.

The aspiration of amniotic fluid is not an accidental complication of labor but must be viewed as a normal consequence of fetal respiration. The respiratory movements are responsible for a tidal flow of amniotic fluid into the lungs, which thus affords a mechanism for the dilatation of the future air passages. Fetal respiration thus aids in the structural differentiation of the normal lung.

The normal development of the alveoli may be complicated by the presence of amniotic fluid containing debris of excessive amount or abnormal type. A mechanical obstruction of bronchioles brought about during embryonic life may interfere with the normal

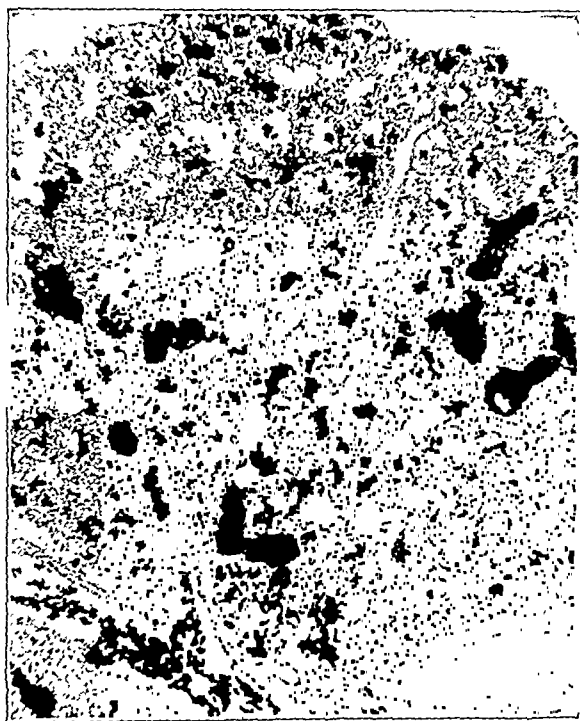


Fig. 3.—Microscopic view of lung B, showing the extensive distribution of carbon particles throughout the alveoli; $\times 80$.

flow into the lung of amniotic fluid and result in incomplete dilatation of alveoli; i. e., atelectasis. Certain types of debris such as cells, meconium and sebaceous matter may be injurious not only as foreign bodies but also as chemical irritants.

In view of the rapid exchange of fluid between the pulmonary alveoli and the amniotic sac, bacterial contamination exposes the alveoli to immediate invasion by a current of infected fluid. The pathogenesis of intra-uterine pneumonia may be clearly reconstructed in many cases as a complication of normal intra-uterine respiration.

CONCLUSION

Two types of injury of the lung before birth may be attributed to breathing of abnormal amniotic fluid; namely, the entrance of foreign debris resulting in obstruction and irritation, and the entrance of foreign organisms producing infection.

11. Eastman, N. J.: Fetal Blood Studies, *Am. J. Obst. & Gynec.* 31: 563 (April) 1936.

TWO CASES OF STREPTOCOCCIC MENINGITIS

TREATED SUCCESSFULLY WITH SULFANILAMIDE AND PRONTOSIL

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Reports from European laboratories which have been confirmed by one of us have resulted in our employment of this new chemotherapeutic treatment of the more severe types of hemolytic streptococcus infection. We also wished to study its effects in comparison with that of a new type of serum treatment which has been used successfully by us for nearly a decade and which was reported in summary form recently. The present paper will be devoted to the report of two cases of meningitis, which by their nature and severity we deem to have important evidential value.

REPORT OF CASES

CASE 1.—*History.*—C. S., a white youth, aged 17, admitted to the hospital Aug. 31, 1936, complained of headache, "running ear" (left), pain, fever, nausea and vomiting. He was delirious. August 28, following a swim in the river, an acute otitis media had developed. The earache became worse. Two days later fever set in. The next day nausea, vomiting and a severe headache developed, most marked over the eyes and left parietal area. The patient had difficulty in recognizing members of the family. On the day of admission, he became dizzy and complained of amblyopia.

Examination.—The boy was poorly nourished and stuporous. He had a high fever (103.6 F), a purulent discharge from the left ear, a gray purulent membrane lining the posterior pharyngeal wall, a few palpable cervical glands, and tenderness below the left mastoid.

Neurologic examination revealed a slightly obscure right disk with slight elevation and congested vessels, weakness of the left internal rectus, slight weakness of the left facial muscles, rigidity of the neck, an increase of the right radioperiosteal reflex, diminished abdominal and cremasteric reflexes, an increased right suprapatellar reflex and slightly increased right achilles reflex, and a suggestive Babinski sign on the right.

A diagnosis of meningitis and otitis media with mastoid involvement was made. A mastoidectomy was performed the same night by Dr. U. F. Rohm. He noted that when the mastoid cavity was opened much pus under pressure and necrotic cells were found. The cavity was cleaned of all denuded tissue.

The first lumbar puncture was done August 31. The cell count was 750. Fluid culture showed hemolytic streptococci.

TABLE 1.—Treatment Used

	Route	Dosage
Prontosil	Intramuscular injections	5 cc. three times a day for three days
		5 cc. twice a day for one day
		5 cc. once a day for two days
Sulfanilamide	Oral	One tablet six times a day for five days

Twenty-four hours after the operation the patient was feverish, irrational, restless and perspiring profusely. He complained of diplopia.

Prontosil² treatment was instituted September 1 (table 1). *Course.*—On the second day of the treatment, the temperature fell 3 degrees. The patient was a little more rational, although still stuporous. On the fourth day he showed marked improve-

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1. Dr. James McLallen in whose nose and throat service the case occurred, gave us the opportunity to treat and study this case.

2. The prontosil used was the disodium salt of 4-sulfamidophenyl-2-azo-2'-acetylamino-1'-hydroxynaphthalene-3', 6' disulfonic acid.

ment. Spinal fluid, however, still showed 850 cells, mostly polymorphonuclears, and the organisms were present on direct smear. The culture, however, grew only one or two colonies on a blood-agar plate, despite a rather large inoculum. On the fifth day he no longer complained of diplopia but was still somewhat drowsy.

Two days later, the rigidity of the neck had practically disappeared.

The next day there was again a slight rise in temperature, and then it fluctuated for several days between 100.6 F. and normal.

The patient was discharged September 15, a little more than two weeks after admission, fully recovered. A report from his physician Feb. 23, 1937, stated that the boy felt well but that he was troubled occasionally with diplopia and dizziness.

TABLE 2.—Treatment Used

	Route	Dosage
Prontosil	Intramuscular injections	5 cc. four times a day for two days
Sulfanilamide	Oral	5 grains every four hours for two days 5 grains every two hours for two days 10 grains every two hours for two days
Sulfanilamide	Rectal (dissolved in water)	15 grains every six hours for two days 10 grains every six hours for two days

On reexamination, Feb. 25, 1937, the patient complained of suffering with occasional diplopia and dizziness. He was doing well in his school work. On examination only a slight nystagmus to the left was found.

Laboratory Studies.—The first urine examination, Sept. 1, 1936, showed albumin 2 plus, from six to eight white blood cells per high power field, and occasional granular casts. The urine was examined daily. By the fourth day the urine was essentially normal.

The first blood count, August 31, showed a fairly normal red count and hemoglobin, but the white blood cells were 19,500, and the polymorphonuclears, 90 per cent. On the next day the white cells numbered 18,000, and two days later 11,650 and polymorphonuclears only 79 per cent. The final white cell count September 9, was 11,000. The Kahn test on the blood was negative.

Roentgen examination of the left mastoid showed a slight haziness over the entire mastoid, with some increase in the thickening of the cell walls but no definite evidence of cellular destruction.

CASE 2.—History.—M. B., a white girl, aged 10 years, admitted to the hospital Jan. 17, 1937, complained of discharging right ear, severe headache, vomiting and fever. She was stuporous and markedly restless. Acute right otitis media developed in the spring of 1936, requiring paracentesis twice. Except for a slight discharge from the ear, which persisted until August, the patient felt well.

Late in December the patient contracted a cold, and discharge from the ear reappeared with marked earache and slight fever. The discharge persisted until the present. One week prior to admission, intermittent headaches developed but not enough to interfere with her activities.

Jan. 15, 1937, she began to complain of pain in the neck and headache. In the evening she vomited two or three times, and this was followed by a rise in temperature. The ear began to discharge profusely. She vomited about every fifteen minutes during the night and became very restless. The fever continued to be high the next morning. She was delirious at times. On the day of admission the condition became much worse.

Examination.—The patient looked moribund. She was extremely restless and not aware of her surroundings. The left eyelid was practically closed. The right cheek was flushed. The heart rate was rapid, but no irregularities or abnormalities were noted. The patient was in stupor. The left pupil was dilated to the extreme and did not react to light. The right pupil was dilated but reacted well. The left disk was slightly hazy. Speech was lost. All deep reflexes were suppressed. The Babinski sign was present on the left. A bilateral Kernig sign was pronounced, and there was marked rigidity of the neck. The temperature (rectal) was 106.6 F., the pulse 140 and the respiration rate 70.

The diagnosis was basal meningitis, streptococcic.

Lumbar puncture was done at once. The fluid was turbid, under marked pressure, and spurting out of the needle. The cell count was 3,000 per cubic millimeter, mostly all polymorphonuclear leukocytes. Streptococci were in chains; about eight chains to the high power field were seen.

Prontosil and sulfanilamide treatment was immediately instituted (table 2).

Course.—The patient's condition remained practically unchanged during the first forty-eight hours except that ballism of the left arm and leg developed, and the left lid closed completely on the second day. The patient was found to have dysphagia. The deep reflexes of the left extremities were increased. In forty-eight hours the child seemed to be more aware of her surroundings. On the third day there were slight changes in the disks, the margins were blurred and the veins were congested. The rigidity of the neck was diminished. The deep reflexes on the right reappeared. The Babinski sign on the left disappeared. In another three days the patient was much clearer, and the dysphagia commenced to improve. Speech, however, did not return. An otologic examination revealed only a puncture but no discharge. On the ninth day after treatment was instituted, a slight yellowish tint of the skin was noted and a blood count was ordered.

Examination of the blood suggested a moderate secondary anemia, and sulfanilamide was discontinued the next day, January 27. Supportive treatment was given.

Speech commenced to return but was typically bulbar. Three days later the patient could carry on a conversation, but speech was still bulbar. The dysphagia practically disappeared. In three more days, slight movement of the left upper lid was noticed. The patient was discharged February 9, twenty-three days after admission, in fairly good condition. It was the first time the patient could co-operate fully.

The discharge note reads: "Speech is much better. The patient states that she feels fine. Left third nerve paralysis is still complete. There is slight weakness of the left side of the face. The tongue is tremulous and deviates slightly to the left. The grip of the left hand is somewhat weak. The deep reflexes are within upper normal limits. Abdominal reflexes are normal, except that the upper left is diminished. No rigidity, no Kernig or Babinski sign.

On reexamination, March 27, ptosis of the left lid had disappeared, but the left pupil reacted only to sympathetic stimulation. Otherwise, neurologic examination was essentially negative.

The first specimen of urine showed 2 plus albumin and from 18 to 20 white blood cells per high power field. The next daily specimen showed less albumin and cells, and in about a week the urine cleared up.

The first red blood count, January 18, was normal, but the white blood cell count was 18,900, and the polymorphonuclear leukocytes constituted 88 per cent. The second count showed a slight reduction in the red cell count and hemoglobin. The white blood cells were only 14,000, and the polymorphonuclears 77 per cent. The third blood examination showed the same red cell count, but the white blood cells had again risen to 20,300, and the polymorphonuclears were 82 per cent. There were also three nucleated red cells, and numerous red cells showed polychromatophilia.

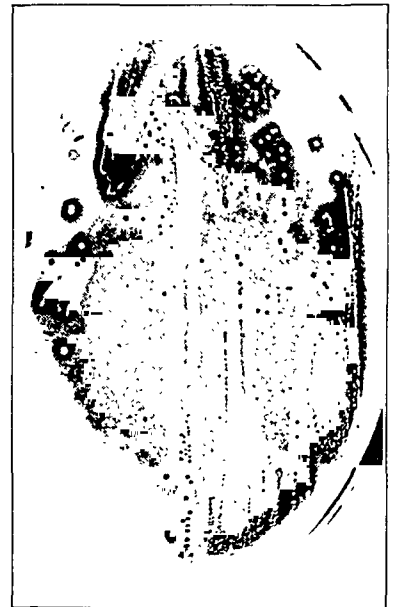


Fig. 1.—Culture made with half a drop of first spinal fluid specimen, showing numerous colonies of hemolytic streptococci.

The next day, January 26, hemoglobin was below 70. Blood smear showed moderate anisocytosis with numerous microcytes. There was an occasional nucleated red blood cell. Numerous cells showed polychromasia.

The next three examinations done after discontinuance of the medication showed gradual improvement in the blood picture.

Spinal fluid examination was done every two days (table 3).

COMMENT

Even though a case of recovery of streptococcic meningitis by other methods of treatment is occasionally reported in the literature, the hopelessness of this con-

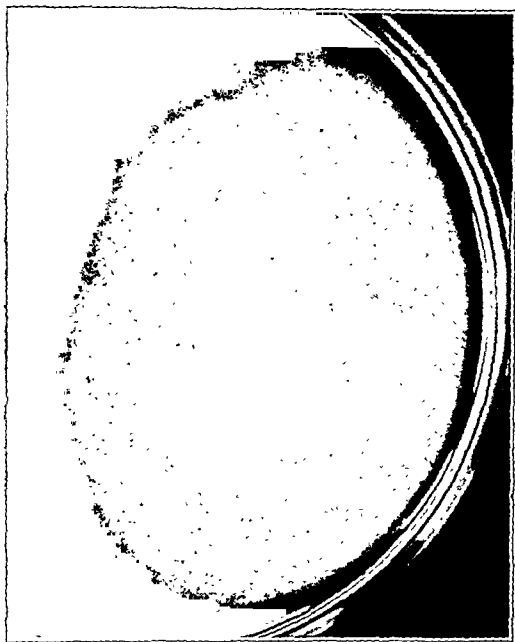


Fig. 2.—Culture made with five drops of second spinal fluid specimen, showing no growth.

dition is recognized by all writers on this subject. Thus Gray,³ including his own case, could find only sixty-one cases of recovery in the years 1901-1935. He considers it a "usually fatal disease." Zeligs⁴ states: "Recovery from streptococcic meningitis rarely occurs. Kolmer stated that the mortality is almost 100 per cent. In a series of thirty-three cases from the University of Michigan Hospital, there was only one recovery. During the past fourteen years there have been fifty-seven verified cases of streptococcic meningitis in the wards of the Cincinnati General Hospital." In this series only one recovered.

Caussé, Loiseau and Gisselbrecht⁵ are the only ones to report a case of meningitis due to hemolytic streptococci treated with protosil. Their case was apparently not of a very severe type. The highest cell count was 92, but a direct fluid smear showed short chains of streptococci, and the culture was positive. The patient recovered.

It is because of the extremely high mortality in streptococcic meningitis that we consider the successful result of two consecutive cases—the only ones we had opportunity to treat—of great significance and of sufficient importance to report promptly, so that the profession generally will try this method in as large a group of cases as possible.

Of the two cases, the second is the one that merits the greater attention. The patient was practically moribund when she was admitted. From both the clinical and the bacteriologic standpoint the patient appeared to be doomed. Dr. Hadley, chief of bacteriology at the institute, made the following comment in his report: "During the past two years at this hospital, no cases of streptococcic meningitis showing such a large number of organisms per field in the direct microscopic examination has lived for more than twelve hours after the spinal fluid was taken." Clinically we felt equally despondent. The child had marked bulbar involvement, and the dysphagia was almost complete. We think that the successful outcome in a case so severe is nothing short of dramatic.

There is no reasonable doubt that a noteworthy bacteriostatic and probably a bactericidal effect of the spinal fluid is present. It is particularly clear cut in the second case, in which no growth of streptococci occurred after treatment, despite the fact that ten times the original inoculation was employed. The relative sparsity of streptococci present in the smears supported this finding.

Moreover, Bambas of this laboratory in a series of carefully conducted bacteriostatic tests found that when 125 of the patient's streptococci were incubated in the patient's fresh spinal fluid about half of them refused to grow after eight hours incubation of the fluid at 37 C. After twenty-four hours none grew. This was in marked contrast to normal serums when seeding of 125 hemolytic streptococci often multiply in twenty-four hours to 2,000.

Of the ultimate fate of these inhibited or killed organisms in the human being little is known. In our studies of several hundred mice we have found no evidence that they were phagocytized either by the polymorphonuclears, the mononuclears or the reticulo-endothelial system of the liver or spleen (Dr. Paul Gross).

These observations are not in accord with the observations of Long and Bliss, who on the basis of

TABLE 3.—Spinal Fluid Examinations in Case 2

	Pressure	Cell Count	Globulin	Direct Smear	Culture
1/17/37	Fluid spurted out	3,000 (polymorpho-nuclears)	.....	Organisms present; chains	Positive
1/19/37	Slight	2,500 (polymorpho-nuclears)	3 plus	Present	Negative
1/21/37	Normal	1,450	2 plus	Absent	Negative
1/22/37	Normal	150 (70% polymorpho-nuclears; 30% lymphocytes)	1 plus	Absent	Negative

appearances in one mouse and its companion control believe that phagocytosis plays an important rôle. Differences in strains may conceivably account for the discrepancies.

The question of dosage and method of administration cannot be answered definitely as yet. The drug does not seem to be very toxic, so it is rather safe to use. Attempts at standardization of dosage are already being made. We have given normal individuals as much as 4 Gm. a day and our type III pneumonia patients who have shown a remarkable response (about 75 per cent recovery) have often received as much and sometimes more, daily.

Colebrook's bacteriostatic in vitro tests indicate that 1:10,000 dilution of the drug is an optimum concen-

3. Gray, H. J.: Streptococcic Meningitis: Report of Case with Recovery. J. A. M. A. 105: 92-95 (July 13) 1935.
4. Zeligs, Mendel: Streptococcic Meningitis: Report of Two Cases with Recovery. Am. J. Dis. Child. 50: 1497-1501 (Dec.) 1935.
5. Caussé, Loiseau et Gisselbrecht: Meningite purulente otogène à streptocoques hémolytiques, traitée exclusivement par un colorant azoïque; Guérison, Ann. d'oto-laryng., pp. 94-109 (Feb.) 1936.

tration in the serum, and now that they have recently made available a quantitative test for the substance in the blood, the matter of the dosage promises to be worked out with more precision.

As to the rule of administering the drug, all workers agree that when swallowing is difficult the drug should be given intramuscularly. Long and Bliss quote Schwenker as having used an 0.8 per cent solution of sulfanilamide in physiologic solution of sodium chloride intrathecally in the treatment of streptococcal meningitis. Causse Loiseau and Gisselbrecht used the drug intravenously. In view of our experience in these two cases we are inclined to think that such a hazardous form of therapy as intrathecal administration should be used only as a last resort. We have overcome the difficulty of the patient's inability to swallow the tablet by administering the drug by rectum.

Therapy should be started immediately. The bacteriostatic observations of the English workers estimate that it takes at least forty-eight hours before such effects can be obtained in the serum; and because of this the treatment should be instituted promptly. In our second case we started the treatment in one hour and twenty minutes, the time that it took to complete the neurologic examination, the lumbar puncture and the microscopic examination of the fluid after admission of the patient to the hospital.

TOXIC EFFECTS

The only possibly toxic effects noticeable were in case 2. On the ninth day of treatment the patient's skin took on a yellowish tint. Blood examinations revealed a moderate progressive decrease of the red cells and hemoglobin, and there were other changes such as a few nucleated red blood cells, polychromasia and moderate anisocytosis. With the discontinuance of the drug the condition of the blood improved. None of the other workers, who have treated many patients with streptococcal infections, noted such a change. It is possible that this is an isolated phenomenon in this particular case.

CONCLUSIONS

1. Two severely ill patients with streptococcal meningitis, one of them of the highest severity, were treated successfully with sulfanilamide and prontosil.

2. One patient recovered fully, but the second still has a partial paralysis of the third nerve.

3. In view of our clinical experience with the drug, it is urged that it be used promptly in cases of streptococcal meningitis.

Pleurisy with Effusion.—We regard pleurisy with effusion as a reinfection form of tuberculosis which develops from the focus of the first infection. The tissues are highly sensitized to tuberculo-protein through the development of the primary lesion, and bacilli are easily transmitted to the lymph channels of the visceral pleura from the lesions, which often lie near the periphery of the lung. The appearance of fluid in the pleural cavity is usually preceded by pain, and friction sounds may be elicited for a few days. When effusion begins to make its appearance and ordinary anteroposterior roentgenograms will not demonstrate it with certainty, Rigler's posture method is of great aid. When the effusion becomes larger, it is usually possible to recover tubercle bacilli from smears of centrifugated fluid or by culture and inoculation methods.—Myers, J. A.; Diehl, H. S.; Boynton, Ruth E., and Trach, Benedict: Development of Tuberculosis in Adult Life, *Arch. Int. Med.* 59:1 (Jan.) 1937.

INTERMITTENT VENOUS HYPEREMIA IN THE TREATMENT OF PERIPHERAL VASCULAR DISEASE

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In analyzing the mechanism by which alternating suction and pressure¹ exert their effects on the course of obliterative arterial disease, we found that in four types of apparatus examined there occurred an intermittent venous stasis in the limb under treatment. The cuff attached to the thigh constricts the limb during the phase of suction and releases it during the phase of positive pressure. The phenomena of reddening of the toes and filling of the veins, the rise of surface temperature and the increased mobility of the toes, all of which can be observed as objective changes produced by passive vascular exercise,¹ can be reproduced by intermittent venous compression. It is our purpose in this communication to examine this factor, study its physiologic aspects and report on its clinical use.

THE EFFECTS OF VENOUS CONSTRICTION

In the beginning of this century, surgical thought was greatly influenced by the writings of Bier² on venous hyperemia. Three and a half decades later, as a summary of his vast clinical experience, he reviewed his observations and those of his school in an article of monographic proportions.³ Bier undoubtedly established the following facts on the basis of experimental and numerous clinical observations: (1) Venous hyperemia produces a reactive hyperemia independent of nervous impulses, (2) mild venous stasis maintained for one hour produces more benefit than arterial constriction of the same duration, (3) reactive hyperemia may be produced when the larger vessels are occluded or cut as in pedicled flaps, whose pedicle had just been severed, and (4) reactive hyperemia ensues through the accumulation of metabolites and the filling and stretching of minute vessels.

It seemed necessary to restate Bier's essential observations in detail, because they are tucked away in a mass of speculative and teleological dissertations and nowhere summarized. Later workers, with accurate physiologic methods, have confirmed all these early views. Thus, Lewis and Grant⁴ think that a slowly diffusible histamine-like substance accumulates in the tissue spaces when the arterial supply to a limb is occluded, causing an active dilatation of all the vessels. A similar reaction occurs, however, when venous pressure is raised, the optimum being 80 mm. of mercury. They stated that the longer the occlusion and the higher the environmental temperature, the more vasodilatation was produced. Differing from this statement, Gold-

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1. A complete bibliography is given by Herrmann, L. G.: *Passive Vascular Exercises and the Conservative Management of Arterial Diseases of the Extremities*, Philadelphia, J. B. Lippincott Company, 1936.

2. Bier, A. K. G.: *Die Entstehung des Collateralkreislaufes*, Virchows Arch. f. path. Anat. 147:256, 444, 1897; 153:306, 434, 1898; *Hyperämie als Heilmittel*, Leipzig, F. C. W. Vogel, 1903.

3. Bier, A. K. G.: *Beiträge zur Physiologie und Pathologie des Blutkreislaufes*, Virchows Arch. f. path. Anat. 291:751, 1933; 293:738, 1934; 294:706, 1935.

4. Lewis, Thomas, and Grant, R. T.: *Observations on Reactive Hyperemia in Man*, Heart 12:73 (June) 1925.

blatt⁵ found in dogs that hyperemia following vascular occlusion was maximal after 120 seconds and that longer occlusions diminished the reaction. He also made an observation, which is important from our point of view, that the reactive hyperemia diminishes after the second occlusion, unless a large enough interval (90-120 seconds) is allowed to elapse between the reactions. The shorter the interval between the two occlusions, the greater the diminution of the reactive hyperemia. When the interval was shortened to fifteen-twenty seconds, the reaction was abolished. This refractory stage is longer, the greater the preceding reaction. Recently Huggins, Blockson and Wilson⁶ gave an exhaustive review of the literature and found that mechanical obstruction to arterial flow resulted in a decrease and, after release, in an increase in temperature. The greatest increments of heat occurred in the bone marrow. In studying the effect of venous constriction they did not find such a reactive hyperemia as to be measurable by an increase in temperature, although this may be detected by measurements of blood flow.

Whether this accumulating vasodilator substance is a single histamine-like substance or, as Krogh⁷ and Bier⁸ believe, a multiplicity of substances is here beside the point. Frey⁹ believes that the increased acidity, which occurs in the anoxic tissue, activates the circulating pancreatic hormone, which is present in the blood but is in an inactive state.

Less interest has been focused on effects other than those due to the accumulation of metabolites following venous constriction. Yet the mechanical effect of filling and stretching of the venules and capillaries, when arterial inflow is unobstructed but venous backflow is interrupted, is obvious. There is a biphasic increase in limb volume when a blood pressure cuff is applied at a pressure which is below diastolic pressure.⁹ During the first phase, the volume of the compressed extremity rises for fifteen to twenty seconds quite rapidly. This is due to the collection of blood in the venules and capillaries and ends when the venous pressure becomes equal to cuff pressure. The capillaries are able to contract against internal pressures of from 50 to 60 mm. of mercury. When venous pressure is raised to 90 or 100 mm. of mercury, petechial hemorrhages may occur. The second phase is due to a stretching of the vascular bed and to tissue edema. Then filtration pressure in the capillaries will be raised over the osmotic pressure of the blood. This ratio is disturbed in limbs suffering from arterial obstruction when the hydrostatic pressure falls below the osmotic pressure, so that circulation will not take place from the capillaries to the tissues.¹⁰ This increased filtration pressure may well explain the temporary beneficial effects of concomitant venous ligations when the artery is obstructed.¹¹

The elevation of venous pressure raises capillary pressure to an equal or even slightly higher level.

Landis¹² has summarized our knowledge and added fundamental data on capillary pressure and capillary permeability. Capillary blood pressure at rest depends on arterial tone, venous tone, posture and temperature. The average capillary pressure is 32 mm. of mercury in the arterial limb and 12 mm. of mercury in the venous limb. When skin temperature is elevated to 42 C., this pressure can be raised to 60 mm. in the arterial and 45 mm. of mercury in the venous limb. A venous pressure of 60 mm. of mercury raises capillary pressure as high as 42 C. of heat or even higher but without the increased oxygen consumption of the cells. With regard to the rate of edema formation, Landis found that a venous pressure of 80 cm. of water (about 60 mm. of mercury) causes fluid to accumulate in the tissue spaces at only 0.20 Gm. per minute per hundred cubic centimeters of tissue. When the veins are obstructed by a cuff placed on the thigh of a dog, lymph flow is markedly increased and the lymph becomes more dilute. A pressure of 60 mm. of mercury maintained for ten minutes raised the lymph flow to 0.54 cc. from 0.1 cc., when the animal stood quietly. Exercise of any sort would quickly increase it to an even greater volume.

Capps¹³ has recently studied the tonus of the venules and capillaries by measuring the increase of the volume of the hand following different cuff pressures and temperatures. Significant is his finding of a marked atony of the venocapillary system shortly after sympathectomy, which was manifested by a great increase in limb volume after applying a pressure of 20 mm. of mercury.

There is finally the effect of the slowing of the circulation on the utilization of oxygen to be considered. If the inflow of oxygenated blood is not diminished, the high intravascular tension of oxygen should lead to an increased saturation of the tissues. And truly, when strips of muscle from guinea-pigs were placed in a Warburg apparatus, their oxygen consumption diminished from one fourth to one half of the normal level after venous constriction, because they had more than the normal concentration of oxygen to start with, whereas after arterial constriction these muscle strips consumed twice as much oxygen as in the resting state, thus explaining Bier's "blood thirst" of the anemic tissue.¹⁴

In considering the oxygen utilization of the tissues during a slowing of the circulation, the following factors have to be considered: by raising the carbon dioxide tension, more oxygen is evolved at low oxygen tension; at lower oxygen tensions the blood gives off more oxygen. On the other hand, new oxygen is not transported rapidly enough to maintain its optimum tension in the tissues. Such a state occurs during venous constriction, a typical "stagnant anoxia" of Bancroft, which is characterized by a normal arterial oxygen tension and a low venous oxygen tension. Thus a large arteriovenous difference in tension might result from increased oxygen consumption but is here caused by retarded circulation of the blood, perfusing oxygen at a slow rate.¹⁵ A low oxygen saturation of the venous

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6. Huggins, C. B.; Blockson, B. M., and Wilson, Harwell: Thermal Changes in Local Asphyxia and Reactive Hyperemia, *Arch. Surg.* 32: 528 (March) 1936.

7. Krogh, August: The Anatomy and Physiology of Capillaries, revised edition, New Haven, Conn., Yale University Press, 1929.

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9. Lewis, Thomas: The Tone Exerted by the Minute Vessels of the Skin in Contracting, *Heart* 11: 109 (April) 1924.

10. Drury, A. N., and Jones, N. W.: Observation upon the Rate at Which Edema Forms When the Veins of the Human Limb Are Congested, *Heart* 14: 55 (April) 1927.

11. Bell, James: The Ligation of Veins with Arteries, *Irish J. M. Sc.*, pp. 262 (June) 1935.

12. de Takats, Geza, and Scupham, G. W.: Peripheral Vascular Disease: A Review of the Current Literature with a Critical Review of the Surgical Treatment, *Arch. Int. Med.* 56: 530 (Sept.) 1935.

13. Capps, R. B.: A Method for Measuring Tone and Reflex Constriction of the Capillaries, Veins and Venules of the Human Hand with the Results in Normal and Diseased States, *J. Clin. Investigation* 15: 229 (March) 1936.

14. Mackuth, Erich, and Witte, Gerhard: Das Verhalten des Sauerstoffbedarfs im Gewebestoffwechsel bei Änderungen in der Durchblutung, *Arch. f. klin. Chir.* 183: 344, 1935.

15. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1931, vol. 1, Interpretation.

blood, which is a function of low oxygen tension, signifies here a low oxygen tension in the tissues. Campbell¹⁶ found that oxygen tension in the tissues closely approximates that of the venous blood. Therefore a venous congestion, as produced for therapeutic purposes, produces a relative anoxia in the tissues, followed by the repayment of the oxygen debt, a reactive hyperemia.

THE THERAPEUTIC APPLICATION OF ARTERIAL CONSTRICTION

Every surgeon has been impressed by the reactive hyperemia that follows the release of a tourniquet. The reactive hyperemia following arterial occlusion has been used by Cushing,¹⁷ who intended to paralyze the vasomotor nerves in applying arterial constriction during the attack of Raynaud's disease. The constriction was kept on for from one to two minutes. The patient completely recovered from her spasms even during the winter months. More recently the orthopedic literature contains favorable reports on alternate arterial constriction and release¹⁸ for exudates in joints and secondary vascular spasms. They combine this reactive hyperemia with an elevation of the leg to empty the blood after release. In this country Jordan¹⁹ reported very favorably on this form of treatment. He elevates the leg for one minute with a pulley, applies cuff pressure above systolic pressure for one minute, lowers the leg in the horizontal position and releases the cuff for another minute. The whole course lasts from fifteen to thirty minutes, or ten cycles of treatment.

This group of authors used a suprasystolic pressure to produce a reactive hyperemia. This is probably an entirely harmless procedure in patients whose peripheral arteries show no organic disease and the resulting increased inflow will dilate the peripheral vascular bed. Bettmann^{28a} showed an increase in the size and number of capillaries after such a procedure. In patients suffering from obliterative vascular disease, the production of even a short asphyxia and of pressure on an inflamed or degenerated vessel is inadvisable. Besides, as shown by Freeman,²⁰ the oxygen debt incurred during the arterial obstruction is accurately repaid after release. Reactive hyperemia following arterial constriction is fundamentally nothing but the repayment of an oxygen debt. An excess amount of blood flow occurs only when damage of tissue has been produced by the arterial occlusion. It would seem to us, then, that although reactive hyperemia after arterial occlusion does produce an impressive vasodilatation and an increase in temperature it just barely compensates for the previous asphyxia and, with partially obstructed channels, this compensation will not be adequate.

THE APPLICATION OF VENOUS CONSTRICTION

Bier used soft rubber tubing for venous stasis; this was produced from one to several hours a day. While he recorded some observations on reactive hyperemia

in cases of arterial ligature and of arteriosclerotic and juvenile gangrene, a systematic series of treatments was advocated only for acute and chronic pyogenic infections, tuberculous processes and gas gangrene. One of his followers, Henle,²¹ felt that the constricting pressure should be measured and brought out a rubber cuff that was inflated from 60 to 100 mm. of mercury. Thies²² was the first to point out that hours of continuous venous compression would lead to very cumbersome and intractable indurations and advocated intermittent pressure and release. He first built an apparatus that was filled and intermittently emptied by water; later he used a carbon dioxide tank and finally an air pump to produce alternate pressure and release. He used venous compression for sixty seconds, followed by a release from ninety to 120 seconds. Thus he empirically discovered, as Goldblatt⁵ had found in the animal experiment, that the duration of the release should be at least as long as that of the obstruction, preferably longer. He treated sixty-three cases of joint infections and gas gangrene in a base hospital and reported very favorable results. He warned of using the alternating pressures for more than ten days but would occasionally maintain a treatment continuously for eighteen hours.

Quite recently Collens and Wilensky²³ introduced the method of alternate constriction and release in the treatment of peripheral vascular disease. They never employed pressures over 60 mm. of mercury in congested, ulcerated or gangrenous legs and prefer to use 40 mm. of mercury. When the outstanding symptom is intermittent claudication, pressures up to 90 mm. may be applied. Judged by the subjective improvement of the patients and by objective criteria, which are admirably simple and clinically useful, their results are impressive. A further discussion of their method will be given in the comments. Our own investigations served the purpose of (1) determining, by the help of objective methods, the changes in circulation following rhythmic venous compression, (2) constructing a simple apparatus by which inflation and deflation of the cuff could be obtained at varying pressures and time intervals adaptable to the patients' individual needs, and (3) establishing the value of this procedure, which is chiefly intended for home treatment over a prolonged period of time.

OWN OBSERVATIONS ON INTERMITTENT VENOUS HYPEREMIA

A. Blood Pressure Readings.—When a rubber cuff is thrown around the thigh and inflated to a subdiastolic pressure, the following changes occur: The veins stand out conspicuously on the dorsum of the foot and may show a venous pulsation; the toes become pink or dusky red in from ten to 120 seconds, depending on the degree of circulatory embarrassment, environmental temperature or arteriolar spasm; the patient feels a light sense of fulness and a mild throbbing at the point of constriction, which increases with the duration of pressure; when the pressure is released, a warm wave of blood seems to rush into the congested extremity. All observations recorded here were made following the produc-

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22. Thies, A.: Die Behandlung akuter Entzündungen mit rhythmischer Stauung, *Verhandl. d. deutsch. Gesellsch. Chir.* **42**: 96, 1913; Die Behandlung chirurgischer Infektionen mit rhythmischer Stauung, *Beitr. z. klin. Chir.* **105**: 595, 1917.

23. Collens, W. S., and Wilensky, N. D.: (a) The Use of Intermittent Venous Compression in the Treatment of Peripheral Vascular Disease, *Am. Heart J.* **11**: 705 (June) 1936; (b) An Apparatus for the Production of Intermittent Venous Compression in the Treatment of Peripheral Vascular Disease, *ibid.* **11**: 721 (June) 1936.

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17. Cushing, Harvey: Treatment by the Tourniquet to Counteract the Vasomotor Spasm of Raynaud's Disease, *J. Nerv. & Ment. Dis.* **29**: 657, 1902.

18. Bettmann, E.: (a) Ein neuer Apparat für Bluteere und Gefassmassage, *Chir.* **1**: 647 (June) 1929; (b) Die klinischen, konservativen Behandlungsmethoden des versteiften Plattfusses, *Verhandl. d. deutsch. orthop. Gesell.-ch.*, 26th day, *Ztschr. f. Orthop. Chir.* **55**: 397, 1932. (c) Schede, F., und Bettmann, E.: Zur Therapie von Ergüssen und Gefassstörungen in den Extremitäten, *München. med. Wchnschr.* **79**: 861 (May 27) 1932.

19. Jordan, Henry: Vascular Massage, *J. Bone & Joint Surg.* **17**: 1021 (Oct.) 1935.

20. Freeman, N. E.: The Effect of Temperature on the Rate of Blood Flow in the Normal and Sympathectomized Limb, *Am. J. Physiol.* **113**: 384 (Oct.) 1935.

tion of a pressure of 80 mm. of mercury for two minutes and a release for from two to four minutes.

Graph I shows four oscillometric curves taken at the right ankle of a patient with normal peripheral circulation. It can be seen from these curves that venous constriction produced an increase in the height of the spikes but no difference in the systolic and diastolic pressures. Immediately after release there is a further increase in pulsation but a decrease in systolic and diastolic pressure. Four minutes after the release of the cuff, the systolic and diastolic pressures have regained their original values but the length of the spikes has further increased. The comparison of the first and fourth curves illustrates a marked change in circulation.

In graph II, a patient's lower extremities showing normal peripheral circulation have been placed under a

of mercury after the release. An increase in the height of the spikes occurred even though, at the first reading, the legs had already been exposed to heat for thirty minutes.

The same procedure carried out on a lower extremity, sympathectomized for Raynaud's disease, resulted in very marked changes after venous compression and release, as shown in graph III. As control and reflex-toric vasoconstriction was abolished in this extremity, the atony of the minute vessels in response to mechanical stretching is striking. A similar result was observed by Capps,¹³ who showed that following an injection of alcohol into the stellate and upper dorsal ganglions the increase in volume of the limb after slight venous pressure was considerably higher than before the injection.

Such increments in pulse waves can be observed also in patients suffering from arterial disease, although the

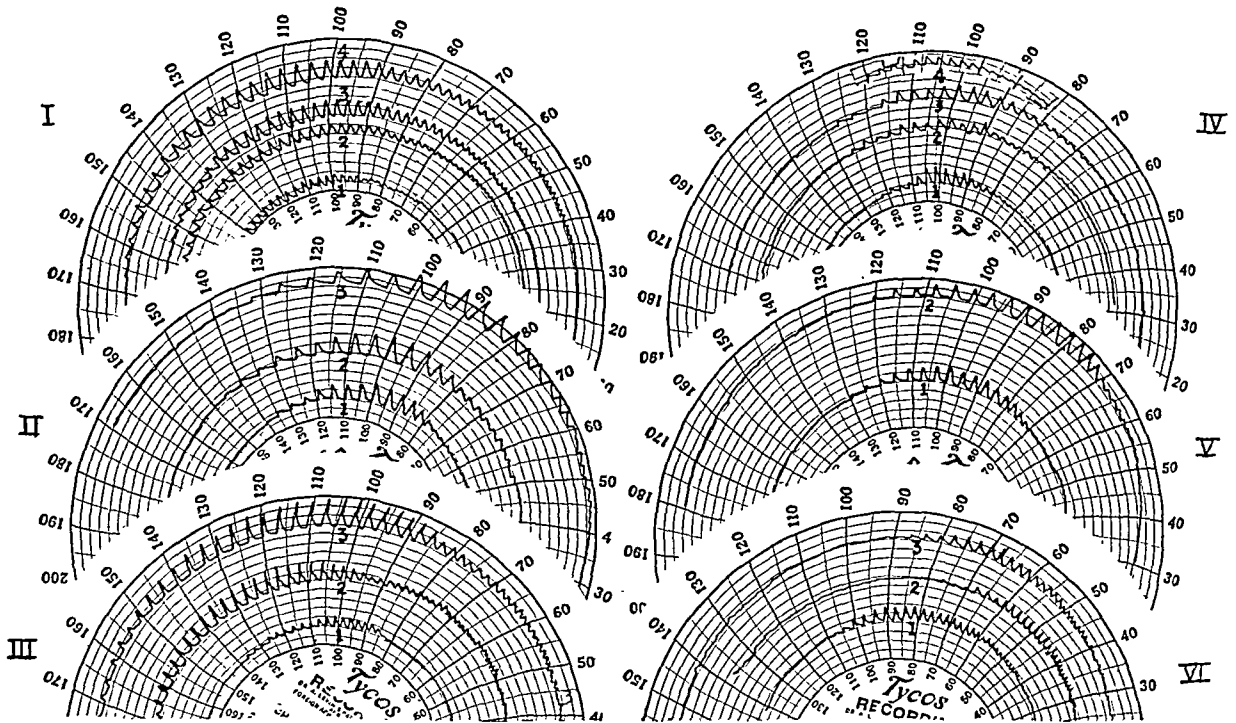


Fig. 1.—Graph I. The subject's lower extremities were exposed to room temperature of 78 F. for thirty minutes. The cuff of the manometer was at the ankle and the constrictor on the thigh. Curve 1 is the control curve. Curve 2 was obtained after thirty minutes of intermittent constriction and release, at the end of constriction and curve 3 two minutes after release. Curve 4 was taken four minutes after release of the same constriction. There was a progressively increasing pulse volume after each phase of the treatment. Note that four minutes after the release of compression the reactive hyperemia was larger than after two minutes.

Graph II. This subject's lower extremities were placed in a heat cradle under thermostatic control and exposed to 85 F. for thirty minutes. At this time curve 1 was obtained at the ankle. A constrictor was then placed on the thigh and inflated to 80 mm. of mercury, this being the individual's diastolic pressure. After two minutes of venous compression the second reading was secured. Note that the pulse waves appear at 145 mm. of mercury compared with 135 mm. during the control period. Two minutes after release the third curve was run, showing a further dilatation of the peripheral vascular bed and a shift of the oscillations to the right, indicating decreased resistance. These curves were obtained during dilatation with heat and after one cycle of treatment (two minutes of constriction, two minutes of release).

Graph III. This patient had had a lumbar sympathectomy a year previously for Raynaud's disease. The lower extremities were exposed to 75 F. for thirty minutes. The first curve indicates a marked vasoconstriction as a direct response to cool air. She then used rhythmic compression with 80 mm. of mercury at the usual rate for thirty minutes. Curve 2 was obtained at the time, during the end of compression;

curve 3, at the end of release. Because of the absence of reflex-toric vasoconstriction and because of the diminished tonus of the venocapillary bed, the mechanical dilatation of the vascular bed during compression and the chemical dilatation after release are more striking. Note also the shift of the spikes to the left during compression and the shift to the right during release, indicating increased and decreased peripheral resistance respectively. This shift to the left and right can be seen on all graphs but is accentuated in the sympathectomized limb.

Graph IV. This illustrates the effect of alternate constriction and release in a patient, aged 33, suffering from Buerger's disease. The reading was made at the ankle. The greatest increment in pulsation was obtained immediately after release (curve 1), whereas two minutes later the vasoconstriction again prevailed (curve 2). The curve taken during constriction shows only a slight opening of the vascular bed (curve 3). Curve 4 shows the control reading at rest. This patient later underwent a lumbar sympathectomy with marked clinical benefit.

Graph V. This illustrates the effect of fifteen minutes of constriction and release under a constant temperature of 85 F. Curve 1 is taken at the end of compression; curve 2 at the end of release. In an individual with normal circulation, exposed to moderate heat, the vasodilating effect after release is very definite.

Graph VI. This patient, suffering from diabetic gangrene, was placed on the oscillating bed of Sanders: curve 1 feet down, curve 2 head down and feet raised, curve 3 horizontal position. Note the rise in blood pressure when the feet are down and the fall when the lower extremities are elevated. In that position the venocapillary bed is emptied and peripheral resistance is decreased. The effect of the Buerger-Allen exercises is well demonstrated by these curves.

heat cradle, thermostatically controlled. The temperature was set for 85 F. It will be noted that both during constriction but particularly after release there was a further increase in the oscillometric spikes. The blood pressure of 135/80 mm. of mercury rose to 145/80 mm. during constriction and dropped again to 132/75 mm.

changes are naturally not as striking. In graph IV, readings were taken from a patient suffering from Buerger's disease with considerable vessel spasm. The highest spikes are shown immediately after release, whereas two minutes later the persistent vessel spasm again diminishes the pulse waves.

In graph V, two curves were obtained after fifteen minutes of compression and release, showing a good response after release. The temperature of the cradle was kept at 85 F. At the end of thirty minutes, however, both show much smaller spikes and a much smaller response.²⁴ This observation reminds one of the interesting animal experiments of Goldblatt, who found that, unless enough time was allowed to elapse after constriction, repeated arterial occlusions were followed by a refractory stage. He stated that repeated venous compression did not result in a refractory stage, but it must be remembered that if such venous constrictions are carried on for a period of thirty minutes a severe anoxia may result.

Because it was felt that, especially in patients with arterial obstruction, the venocapillary bed could not sufficiently empty during the period of release, the

accomplishes this emptying by elevating the leg during treatment and by the help of the positive phase of the cycle. This can be readily accomplished by elevating the leg as in the Buerger-Allen exercises or by lifting it up with a pulley so that active muscular contractions, which consume so much oxygen, as pointed out by Reid, are avoided.

These considerations led us to adopt a triphasic cycle; namely, (1) elevation of the leg, (2) venous compression while the leg is still elevated and (3) horizontal position followed by release. The time ratios, which may have to vary according to the needs of the patient, will be described presently.

In interpreting the increased oscillations that follow both constriction and release, one must consider that the tightening of the cuff around the congested and later hyperemic extremity may be responsible for the

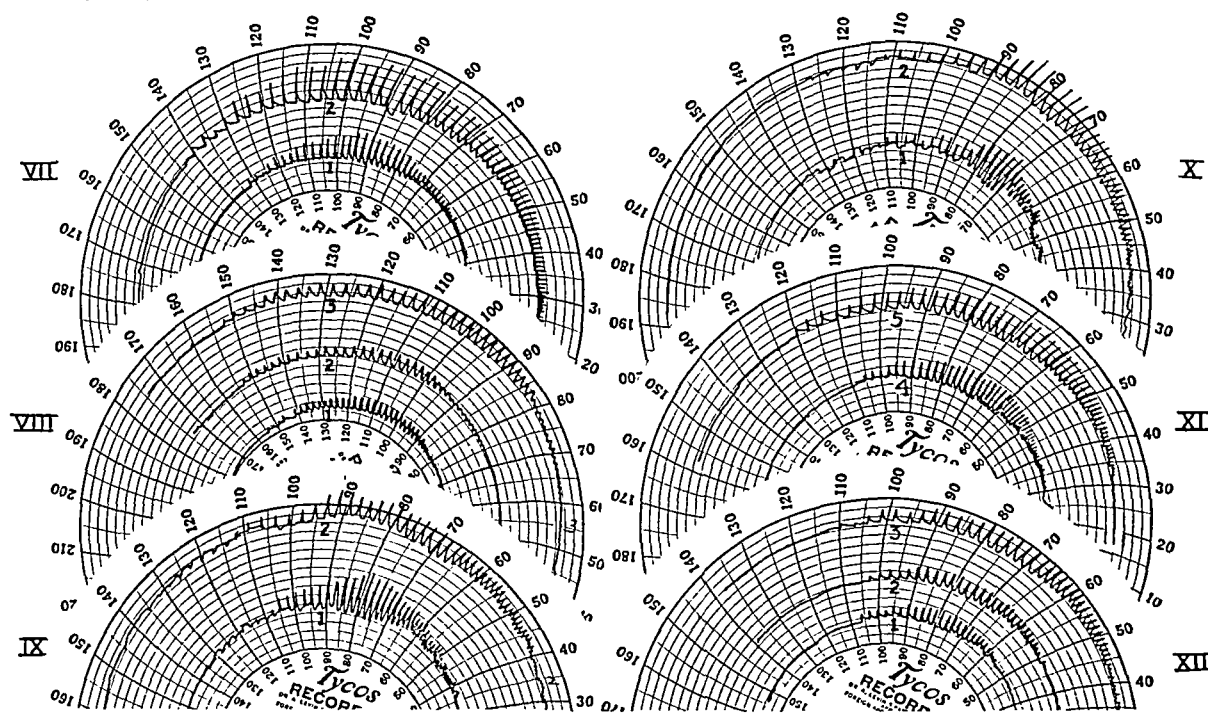


Fig. 2.—Graph VII. These curves illustrate the effect of placing the cuff of the blood pressure apparatus loosely (curve 1) or tightly (curve 2) around the ankle. Note the rise in systolic and diastolic pressures when the cuff is tight.

Graph VIII. In this graph the recording cuff was placed above the constrictor to rule out the tightening effect of constriction and release on the cuff. Curve 1 is the control curve; curves 2 and 3 were obtained after a single constriction and release respectively. The effects are similar to those obtained with the recording cuff below the constriction. It illustrates that the mechanical stretch and the chemical dilatation during constriction and release are not simulated by the tightening of the recording cuff.

Graphs IX and X. These curves were obtained from an upper extremity of an arteriosclerotic patient aged 60; the recording cuff was

above the constrictor. The effects are shown in curve 1 as control, curve 2 during constriction and curve 2 on graph X after release. Note that in this case there occurred a vasoconstriction in the extremity above the inflated cuff, which is probably on a reflex basis, originating in the pressure of the cuff. After release, vascular relaxation is obvious.

Graphs XI and XII. These indicate the duration of reactive hyperemia, after two minutes of compression with 80 mm. of mercury: (1) immediately after release, (2) one minute after release, (3) three minutes after release, (4) four minutes after release and (5) six minutes after release. It would seem that alternate constriction and release must be so arranged that enough time is given for the full development of the reactive hyperemia. In this instance a ratio of 1:3 brought about the maximum response.

stagnating blood was emptied by elevating the leg just before a renewed compression. The effect of gravity on the blood pressure of an extremity has been emphasized by Bier,³ Pearse and Morton²⁵ and Mont Reid.²⁶ In graph VI we show the pulse of a diabetic extremity on an oscillating bed in the horizontal, Trendelenburg and reverse Trendelenburg positions. When the leg is elevated, not only does the arterial pressure fall but the venocapillary bed empties and makes room for fresh blood. The alternating suction and pressure apparatus

increased oscillations. That this actually happens is shown in graph VII, in which the cuff was first applied loosely and then tightly at the same level under identical external conditions. But it must be remembered that the tight cuff produces a venous compression "per se" and therefore this experiment could not be of decisive value. It had to be shown that increased pulsations could be obtained following venous constriction, even though the cuff remained loose. Therefore the cuff of the automatic sphygmomanometer was placed above the constrictor and not below, as in the previous experiments, in which the venous compression readily causes an increase in limb volume and, in turn, a tightening of the cuff.

24. Graph omitted because of lack of space.

25. Pearse, H. E., Jr., and Morton, J. J.: The Blood Pressure in the Arteries of the Extremities in Normal Subjects and in Patients with Peripheral Vascular Disease, *Am. J. M. Sc.* 153:485 (April) 1932.

26. Reid, M. R.: The General Care of Peripheral Vascular Diseases, *Ann. Surg.* 96:733 (Oct.) 1932.

Graph VIII shows a group of readings in which the constrictor was placed below the cuff of the sphygmomanometer. There seems to be little difference between the control curve and the curve taken during congestion, although there would seem to be a slight increase in both the systolic and the diastolic pressure, probably because of the increased resistance produced by the constrictor. Following release, one again observes a definite reactive hyperemia, with increased pulsation, the same systolic but diminished diastolic pressure, 10 mm. of mercury lower than during constriction. From these observations one may conclude that the increased pulse volume is not due to the tight cuff *per se*, as in these experiments the limb did not swell. In placing the constrictor below the cuff, another phenomenon became apparent; namely, a reflectoric vasoconstriction originating from the pressure of the constrictor. This reflex vasoconstriction, which has been studied by the help of a "pinch reflex" by Carmichael and his associates²⁷ and by Capps,¹³ varies, of

TABLE 1.—*The Saturation of Venous Oxygen During Various Forms of Passive Vascular Exercise*

Type of Procedure	Case	Before	At 20 Minutes	At 40 Minutes
Suction and pressure.....	1	74.0	72.9	61.0
	2	65.6	53.4	39.0
	3	62.8	61.6	47.2
	4	42.5	56.4	55.2
	5	49.0	53.6	65.6
	6	54.6	32.7	39.5
Continuous venous stasis.....	7	81.2	78.5	65.4
Intermittent venous stasis..... 2 minutes-2 minutes	8	70.2	54.3	36.9
	9	81.2	78.5	65.4
	10	89.6	65.8	58.8
Intermittent stasis and elevation. 2 minutes-3 minutes-1 minute	11	70.0	77.5	69.6
	12	69.8	55.6	62.6

The figures represent the percentage saturation of venous blood, drawn under oil from the femoral vein. In each case the carbon dioxide and oxygen content was determined by puncturing the femoral artery. The oxygen saturation of the femoral vein was used as an indicator of oxygen tension in the venous blood and in the tissues. It will be noted that in the first three cases, in which treatment was given by the A apparatus, a fall in venous oxygen occurred—most marked in case 2. In cases 4 and 5, in which treatment was given with apparatus B, the saturation rose. In case 6 treatment was given with apparatus C, which produced a marked fall as early as twenty minutes. In case 7 a mild continuous venous compression was given with 40 mm. of mercury. In cases 8, 9 and 10, intermittent compression of 80 mm. of mercury was given for two minutes, followed by two minutes of release. In cases 11 and 12 a period of two minutes of compression with 80 mm. of mercury, three minutes release and one minute elevation was employed.

course, in various individuals. It is well demonstrated in graphs IX and X. The release of the constrictor in the same individual, however, resulted in a satisfactory hyperemia. Both temperatures of 90 to 95 F. and a sympathectomy abolish this mild vasoconstriction.

Finally, the effect of repeated oscillometric readings was studied in a normal person. It can be seen (graphs XI and XII) that repeated readings at one, two, four and six minutes after the initial reading open up the vascular bed more and more and may thus serve as a simple test for the flexibility or rigidity of the peripheral vascular bed. Whether they have a prognostic significance in patients with arteriolar involvement remains to be seen.

B. Determinations of Venous Oxygen Saturation.—In yet unpublished observations, Hick and de Takats²⁸ studied the effect of various therapeutic measures on the oxygen content and saturation of the femoral vein draining the treated extremity. Some of these observations relate to the behavior of oxygen saturation during

treatment with different types of suction apparatus and during continuous and intermittent venous hyperemia. Table 1 presents our results expressed in percentage of saturation of venous oxygen. In all these patients the oxygen capacity and the saturation of the arterial blood were normal. To save space we are presenting only the comparable end results of many determinations, all of which were run in duplicate. Treated with suction apparatus A, the first three individuals maintained their oxygen saturation at twenty minutes fairly well, but after forty minutes an unsaturation is definite, especially in cases 2 and 3. Patients 4 and 5, treated with apparatus B, maintained and even increased their venous oxygen content and saturation.²⁹ When continuous stasis was produced with 40 mm. of mercury, the figures behaved very similarly to those seen during the use of apparatus A. When intermittent venous compression was produced, with pressures and cycles recently advocated,^{23a} similar signs of venous stasis and consequent anoxia appeared. Finally, by prolonging the phase of release and emptying the venocapillary bed by posture, the saturation is fairly maintained in spite of the fact that the venous compression is produced with 80 mm. of mercury.

It seems that with certain types of apparatus, in which long negative and short positive cycles are used, the oxygen debt incurred during the negative phase and due to compression of the thigh is not repaid at the end of treatment. The same condition occurs when a mild continuous stasis is used or if the compression is intermittent, but a thorough emptying of the stagnating blood is not permitted. In all these treatments, a "stagnant anoxia" is produced with lowering of oxygen tension in the tissues. Only the last type of intermittent venous hyperemia effects a repayment of the oxygen debt during treatment.

At first glance one might be led to believe that, with the arterial oxygen content remaining the same, the drop in venous oxygen content and saturation must mean an increased utilization of oxygen in the tissues. This would be true if the rate of blood flow through the capillary bed would remain constant. The contrary is true, however. The blood flow is diminished, since the oxygen consumption must remain nearly constant, yet the arteriovenous oxygen difference is found to increase. This means a lowering of tissue oxygen tension.¹⁶

We are well aware of the fact that the paucity of data does not permit conclusions; also that certain variable factors make comparable controls very difficult. We wish to present a method by which various therapeutic procedures can be tested. The observations made during a cycle of compression, release and elevation support our previous observations with the recording sphygmotonomograph that reactive hyperemia must be given enough time for the full repayment of the oxygen debt.

PRACTICAL APPLICATION OF THE METHOD

Any blood pressure apparatus can be used to produce intermittent venous hyperemia, but a wide, 8 inch cuff, conically shaped to fit the thigh, is preferable as the pressure is distributed over a larger surface and the same amount of pressure that is painful when exerted by a narrow cuff is comfortable. The amount of pressure should not exceed the diastolic pressure of the extremity at that level. It varies between 90 and 60 mm. of mercury in an extremity of which the toes are not edematous, not cyanotic, not ulcerated and not gangrenous. When the foregoing conditions exist, 40 mm.

27. Stürup, C.; Bolton, B.; Williams, D. J., and Carmichael, E. A.: Vaso-motor Responses in Hemiplegic Patients, *Brain* 58:456 (Dec.) 1935.
28. Hick, F. K., and de Takats, Geza: The Effect of Sympathetic Ganglionectomy, Alternating Negative and Positive Pressure and Alternating Constriction and Release on the Oxygen-Saturation of Venous Blood, to be published.

29. Patient 6, treated with apparatus C, showed a marked drop of oxygen saturation as early as twenty minutes.

of mercury should not be exceeded at first, although with later improvement the pressures can be gradually raised. The duration of the venous compression is determined by the appearance of a definite rubor; this occurs in from one to two minutes when pressures of from 60 to 90 mm. of mercury are used. The duration of the release should exceed that of the compression; together with the one minute of elevation, which can be

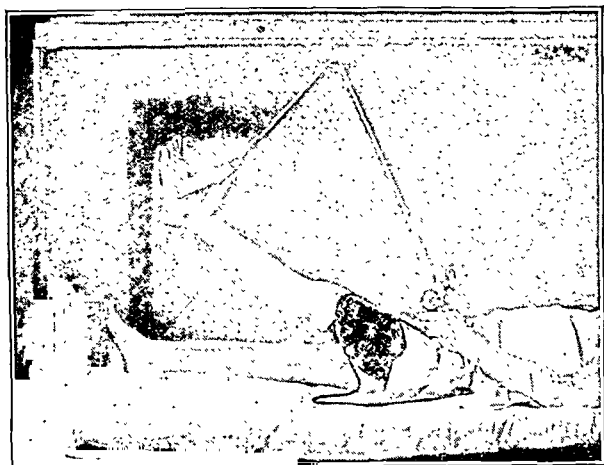


Fig. 3.—Apparatus in use. For the home, the pulley can be screwed into a door jamb, or a wooden frame can be constructed.

kept constant, it should last twice as long as the compression. Thus two minutes of compression requires four minutes of release, out of which three minutes is in the horizontal position and one minute in the elevated position. The elevation can be active, but it is preferable to lift up the leg with the help of a pulley. Thus in the average case a cycle is completed in six minutes; two minutes compression, three minutes release, and one minute elevation. When the circulatory embarrassment is more pronounced, one minute compression will readily produce a rubor and is followed by one minute release and one minute elevation, a cycle of three minutes.

Ordinarily thirty minutes of this vascular exercise in the morning and thirty minutes in the evening are prescribed. The method is flexible and readily adaptable to the patient's needs. Should it be painful or uncomfortable, either the pressure or the duration of the individual cycle has to be adjusted in order to obtain maximum benefit. When the patient is very sick, a relative or a nurse may inflate and deflate the cuff and lift the leg (fig. 3).

RESULTS

We have selected ten patients from a large group for the study of this method.^{29a} These patients were so selected that a close follow up could be instituted and repeated examinations were possible. Our observations are summarized in table 2. We are deeply conscious of the difficulties of evaluating the effects of any form of therapy in peripheral vascular diseases. In the first place, the spontaneous progress, remission and stationary periods, the effects of climate, season and barometric

29a. The number of patients who have taken at least sixty hours of treatment has now risen to twenty-five. Our impressions regarding the value of this method have been further confirmed. Favorable results have been obtained in three patients suffering from Buerger's disease, who have had lumbar sympathectomies. As shown in graph III, the effect of stretching of the venocapillary bed is very marked in the sympathectomized limb. As intermittent claudication is a symptom hardly influenced by sympathectomy (The Value of Sympathectomy in Peripheral Vascular Disease. Surgery, to be published), intermittent venous hyperemia seems to be a useful after-treatment for patients who had previously undergone sympathectomy for Buerger's disease.

pressure are not within control. Secondly, other forms of therapy that have an established value have been continued, as we did not feel justified in withholding any drug or method that in our past experience has proved helpful. Nevertheless, from our past experience with treatments of different types we regard the intermittent venous hyperemia as a valuable adjunct, an exercise for the home, which can be carried out over a period of months with very little expense and loss of time to the patient.

No results have been obtained in one case of Buerger's disease—and this is in harmony with observations made in our preliminary report on the Herrmann apparatus.³⁰ The rather striking improvement in our second case of Buerger's disease may be explained by the abstinence from tobacco which was instituted at the same time. Patient 7, with a severe form of arteriosclerosis with sclerotic but patent major arteries, did get relief from his rest pain. He was, however, immobilized in bed for two weeks with mild continuous heat and received paravertebral alcohol injections. The beneficial effect of rest in bed is so outstanding that we regard it as one of the most important factors in obtaining results. With the exception of this case, however, all other patients were ambulatory, using this exercise morning and evening, before and after work. Patients 1 to 6, suffering from arteriosclerosis or arteriosclerosis with diabetes, have responded favorably. The best result has been obtained in patient 4, a man whom we had the opportunity to observe three times a week for a period of two months, as he took his treatment in the

TABLE 2.—Observations on the Effect of Intermittent Venous Hyperemia on Peripheral Vascular Diseases

Case	Age	Diagnosis	Hours of Treatment	Effect on				Additional Treatment
				Coldness and Numbness	Claudication	Rest Pain		
1	72	Arteriosclerosis	60	+++	—	—		Theobromine
2	58	Arteriosclerosis	60	—	200 to 500 paces	—		Theobromine
3	62	Arteriosclerosis	60	—	200 to 700 paces	++		Theobromine, aminoacetic acid, vitamin B ₁
4	65	Diabetes	40	+++	1½ blocks to 3 miles	—		
5	61	Diabetes	30	+++	100 to 850 paces	+++		Theobromine, papaverine, phenobarbital
6	56	Diabetes	60	++	150 to 220 paces	—		Theobromine, aminoacetic acid
7	58	Arteriosclerosis	60	—	0	+		Paravertebral nerve block, theobromine, papaverine, phenobarbital
8	45	Buerger's disease	60	0	0	+		Paravertebral alcohol, peripheral nerve section, theobromine
9	25	Buerger's disease	60	—	1 to 8 blocks	—		Abstinence from tobacco
10	42	Postembolic arterial occlusion	344	++	0 to 1½ blocks	..		Paravertebral alcohol, theobromine

Legends: +++ = complete relief, ++ = greatly improved, + = better, 0 = no effect, — = absent at beginning of treatment. Claudication gaged according to ability to walk at a rate of ten paces in five seconds until cramping occurs.

department of physical therapy. His treatment was stopped after forty hours; he was then given an outfit to use in the home.

Our criteria of improvement, as shown in table 2 are purely clinical and only roughly indicate the change in circulation. We have, however, individual instances in

30. de Takats, Geza: Obliterative Vascular Disease, J. A. M. A. 103: 1920 (Dec. 22) 1934.

which careful studies of the vascular status reveal an increase in collateral reserve. In our present state of knowledge it is not possible to decide just how long these treatments should be continued. But when a certain amount of improvement has been obtained we have discontinued treatment to see whether the results would hold. It seems logical to resume the treatments in periods of stress such as the spring and fall months exert on the vascular system. We have followed this principle for some years in giving typhoid vaccine in Buerger's disease during such seasons. That the summer months afford comparative relief to patients affected by vascular disease is obvious to those who study the attendance at vascular clinics in different months of the year.

A final aspect, namely, the mental outlook of the patients, should not be overlooked. These patients are afraid and truly in danger of losing a toe or a limb;



Fig. 4.—Home made apparatus. Note the double cuffs in use. The pulley is attached to a wooden frame. Note the automatic bell on the wall.

they have already tried different methods with questionable results. They hang their hope on the suction and pressure apparatus, which in our experience has occasionally given relief even when no suction and pressure were applied. The comforting feeling of some definite active form of treatment has been given to them by a short intensive course of treatment, which incidentally keeps them in bed, corrects their diet and permits a thorough study of their vascular status. When they leave the hospital, should this mental crutch be suddenly removed? The home treatment, which we confidently feel has a sound physiologic basis, offers them in addition the possibility to continue in active form a type of exercise which, unless the reserve capacity of the vascular bed is completely exhausted, opens, fills and stretches the venocapillary bed and dilates it as far as it will dilate.

COMMENT

We have been interested in finding a simple and inexpensive substitute for the negative pressure apparatus.

Certain advantages of this intermittent venous hyperemia over treatment with alternating suction and pressure are as follows: The treatment (1) can be used at home, at comparatively little cost, far away from medical centers, (2) is therefore available to a larger mass of people, and (3) has a more logical cycle of constriction and release and is readily adaptable to the circulatory embarrassment of the individual patient.

There are obvious disadvantages of this method. It requires an active participation of the patient and cannot be used except with outside help for desperately sick patients, such as we encounter in the acute arterial occlusions. In bilateral lesions, which are so frequently encountered, it necessitates the use of double cuffs with simultaneous elevation of the two lower extremities (fig. 4); this may be cumbersome to some patients. Finally, it may lead to unsupervised self treatment in the home—but this objection is valid for any type of heat, lamp or exercise that may be prescribed for the home.

On the basis of our oscillometric readings and determinations of venous oxygen content and saturation, we suspect that the present cycles used on some of the pressure appliances are not optimal. This is accurately reflected in the diminishing saturation of venous blood with oxygen. On one machine, in which a cycle of 1:1 ratio (even negative and positive cycles) can be produced, the results seem gratifying and the venous oxygen is maintained. It must be remembered, however, that none of these machines produce longer phases than twenty seconds and that the period is scarcely enough to fill and stretch a vascular bed with a normal arterial inflow. In an extremity in which the blood pressure is low and in which the blood flow per minute is cut down to one third or one fourth of the normal, it must take longer to obtain a maximal filling of the minute vessels. Therefore we postulate at least a constriction of one minute to obtain a mechanical stretching of the vascular network, preferably more.

We do not wish to imply that the treatment by alternating negative and positive pressure operates wholly on the basis of intermittent venous hyperemia. There is undoubtedly a partial release from atmospheric pressure of the cutaneous vessels, and this vascular massage of the skin may have reflectoric circulatory effects on deeper structures. But we maintain that there occurs with every phase of suction a marked compression of the thigh and that all the subjective and objective phenomena described as occurring during and after such treatments can be reproduced more simply by alternating constriction and release.³¹

All the contraindications to the treatments by suction and pressure that exist are to be observed in treating patients with intermittent venous hyperemia. They are spreading infection, thrombophlebitis and widespread arteriolar destruction. Because of our comparatively long venous compression from one to two minutes, patients exhibiting venous stasis, cyanosis or gangrene must not be treated with higher than 40 mm. of mercury, as emphasized by Collens and Wilensky.^{22a}

One must guard against an attitude of the patient or the attending physician that such a method effects a cure of peripheral vascular disease and that it provides

31. After the completion of this manuscript there appeared an article by Theis and Freeland (Peripheral Circulatory Diseases, J. A. M. A. 107:1097 [Oct 3] 1936) in which it was stated that alternating positive and negative pressure treatments act by increasing the metabolism of tissues. Their evidence was based on a drop of venous oxygen saturation. Our interpretation of this observation, as outlined in the body of this paper, is the creation of a "stagnant anoxia." The rise in surface temperature observed after such treatments is open to a number of interpretations and is not adequate evidence of increased metabolism.

new feet for the old. It is just one method of physical therapy to be used in combination with other methods of treatment. Its purpose is to halt the progress or slightly improve a progressive obliterative vascular disease of the peripheral arteries. As one of us emphasized in a preliminary report on alternating suction and pressure therapy,³⁰ the organic disease, which is usually systemic, will go on and the life expectancy of the limb will depend primarily on the condition of the vessels of the heart, kidney and brain, to mention the most important factors. But a local improvement of collateral circulation brought about by a mechanical phase of stretching the venocapillary bed and a chemical phase of creating an oxygen debt and repaying it with a reactive hyperemia offers subjective relief and occasionally saves a limb from major amputation.

A combination of intermittent venous hyperemia with methods that help to relax constricted vessels seems worth while, especially when vascular spasm is an important factor. We have always maintained that Buerger's disease is not strikingly influenced by alternating pressure therapy. We found the same to be true with regard to the rhythmic compression used intensively in two patients. A possible explanation is that the cuff pressure may provoke and aggravate the vessel spasm (fig. 1, graph V). Following sympathectomy, however, this reflectoric vessel spasm is abolished and the venocapillary bed can be dilated more effectively (fig. 1, graph III). We are now instituting such treatments on Buerger's disease following sympathectomy, unless they are in an active inflammatory stage.

Heat has been used in these patients with great moderation in the form of simple heat cradles. The temperature within the cradle should not exceed 85 F. More heat than this often aggravates pain, speeds up metabolism and calls for more oxygen than the diminished arterial flow can supply.

Vasodilator drugs show in the majority of cases a slight but unmistakable influence. We have little experience with other drugs than theobromine,³² but this with papaverine and phenobarbital are definitely helpful. In cases of acute arterial occlusion, papaverine is most effective.³³ The general care of patients suffering from peripheral vascular disease has been described elsewhere.³⁴ Undue emphasis on any one therapeutic procedure, be it medical, surgical or physical, spells, sooner or later, a disillusionment.

SUMMARY

The simple method here described produces intermittent venous hyperemia combined with postural emptying of the venocapillary bed and has an effect on the mechanical filling and stretching of the vascular tree, on the chemical vasodilatation as a result of an oxygen debt, on capillary pressure, on lymph flow and on the saturation of the tissues and the venous blood with oxygen. The method may prove helpful as a home treatment for patients suffering from obliterative vascular disease but should be used in combination with other recognized forms of conservative and surgical therapy. The general cardiovascular status, its progressive or stationary trend, will determine the ultimate result of any local therapy.

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HYPOGLYCEMIC THERAPY

REPORT OF EIGHT CASES

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Publicity in the press and the keen interest of the medical profession regarding reports from European clinics of the remarkable results obtained through the use of hypoglycemic shock therapy in the treatment of dementia praecox caused the Committee on Public Education of the American Psychiatric Association to warn both the public and the profession about this new therapy. As mentioned recently in *THE JOURNAL*,¹ the public statement was concurred in by all members of the committee and also by the president of the association, Dr. C. Macfie Campbell. In this warning it was stated that the impression that there is no treatment for dementia praecox except through insulin therapy is entirely erroneous and that the insulin shock treatment is being studied in the New York and Massachusetts state hospital systems, in Bellevue Hospital, New York, and in other scientific centers but is not to be undertaken except by those adequately trained to meet its dangers.

Reports² of European clinics show that 75 per cent of the patients ill less than half a year are completely recovered as a result of this therapy and that more than 69 per cent of those ill less than a year and a half become productive, socialized individuals able to resume work. Especially does it merit consideration since there is no other treatment for dementia praecox that has proved effectual. Spontaneous recovery occurs in this disease in less than 10 per cent of the cases. The remaining large percentage consists of chronic and incurable patients with a very long expectancy as custodial insane persons, most of whom become charges of the state. In 1934 there were 150,000 of these patients in state hospitals, and 19,149 new patients were committed in 1935.³

The hypothesis that Sakel applied successfully in cases of narcotic addiction and with startling results in cases of schizophrenia⁴ seems to be applicable also to at least some neuroses. In my practice psychoneurotic patients, some of them problems for years, are responding to this therapy. In the management of neurotic patients, however, the insulin is neutralized before shock occurs, but in cases of schizophrenia the hypoglycemic shock is the criterion or instrument that produces the benefit. As numerous investigators are agreed, it seems that the carbohydrate metabolism of the central nervous system is stimulated by insulin therapy, improved function resulting.

Grave dangers undoubtedly attend the treatment, particularly in the second of the four phases outlined by Sakel.⁵ In this period of shock a physician should be in constant attendance, and the attendants should be ready for all emergencies. Emphasis is to be placed on the careful guarding of the circulatory system. There

1. Insulin Shock Treatment for Schizophrenia, Current Comment, *J. A. M. A.* **108**:560-561 (Feb. 13) 1937.

2. Glueck, Bernard: Hypoglycemic State in Treatment of Schizophrenia, *J. A. M. A.* **107**:1029-1031 (Sept. 26) 1936; The Induced Hypoglycemic State in the Treatment of the Psychoses, *New York State J. Med.* **36**:1473 (Oct. 15) 1936.

3. Federal Census Reports for 1934 and 1935.

4. Wurtis, Joseph: On the Response of Schizophrenic Subjects to Hypoglycemic Insulin Shock, *J. Nerv. & Ment. Dis.* **84**:497 (Nov.) 1936.

5. Sakel, Manfred: Zur Methodik der Hypoglykämiebehandlung von Psychosen, *Wien. klin. Wchnschr.* **49**:1278-1282 (Oct. 16) 1936. Wurtis.⁴

32. Scupham, G. W.: Effect of Theobromine on Peripheral Vascular Disease, *Arch. Int. Med.* **54**:75 (Nov.) 1930.

33. de Takats, Geza: The Use of Papaverine in Acute Arterial Occlusions, *J. A. M. A.* **106**:1002 (March 21) 1936.

34. de Takats, Geza: Peripheral Vascular Disease: Its Significance for General Practitioners and Specialists, *J. A. M. A.* **104**:1463 (April 27) 1935.

is danger of lasting injury to the heart in too great reduction of the sugar content of the blood. In most cases the coma results from the reaction to insulin rather than from the hypoglycemia, and determination of the blood sugar content in the hypoglycemic state is therefore of practically no value in determining the dosage of insulin. Apart from certain guiding principles, the therapy is individual in character, and both the depth of the shock and the number of shocks given depend largely on the intuition and good judgment of the physician in charge.

The variability of the reaction of the individual patient and of different patients to insulin is amazing. Patient 3 of this series walked around the hospital in apparent comfort after receiving a dose of 310 units. In other cases shock followed the administration of 25 units. Patient 1 went into such a deep coma that the administration of dextrose intravenously failed to restore him to consciousness. Usually the accumulation of a thick viscid mucoid saliva offered a problem. In case 2 pneumonia followed aspiration, an ever present danger. The suction machine was used and atropine freely administered in this series of cases. Since epinephrine reduces the shock, it was not used unless a convulsion or a circulatory disturbance was threatened. Arrangements have been made to use bronchoscopic suction with the next patient who aspirates.

The treatment can be carried out successfully in any general hospital that has a good psychopathic ward with a trained personnel of physicians and nurses. Indeed the dangers are more readily avoided and the emergencies more easily met in such an institution than in a psychopathic hospital. Also, treatment in a general hospital obviates the necessity of committing many patients to state institutions, a consideration usually of great importance to the patient's family and of economic significance to the state as well. The following reports of eight unselected cases of psychosis and neurosis show the feasibility of administering this treatment in a well equipped general hospital:

REPORT OF CASES

CASE 1.—A truck driver, aged 20, white, was admitted to the Tampa Municipal Hospital Dec. 16, 1936, in a disturbed mental state. He stated that while driving his truck he would be unable to remove his gaze from a house or other object on which it chanced to fall and added that his mind failed to tell him when he was physically fatigued. A good student, he was deeply concerned, he said, about the Bible, which until six months previously he had been unable to understand but now comprehended fully. Not he but the world without was disordered, he felt, and others could tell all that passed through his mind. He grimaced, displayed peculiar mannerisms and gave evidence of emotional poverty. He appeared to be wholly indifferent to his environment. After a night in the hospital he held his neck, believing it injured by gas, with which he thought he had been put to sleep. He also believed that waves of electricity, with which he thought he was being treated, were passing through his body. Except for vagotonia, physical examination was negative.

Anxious to avoid commitment, his family insisted on institution of hypoglycemic shock therapy at once, even though no literature on Sakel's method was as yet procurable. Accordingly the patient, fasting, was given 20, 35 and 55 units of insulin on succeeding mornings without any reaction. The drug was then administered every two hours until he lapsed into coma late on the night of December 24 after receiving 172½ units. Two hours afterward he had an epileptic seizure of eight minutes' duration. He was allowed to remain in the coma for four hours and was normal the next morning. He went home two days later.

After eight days pronounced symptoms returned, and the patient was readmitted to the hospital, Jan. 7, 1937. By the

administration of 60 units of insulin at 6 o'clock in the morning and 40 units two hours later, four wet shocks were produced and interrupted without difficulty. Following the fifth shock, however, he remained in the coma. Fifty cc. of 50 per cent dextrose was administered three times at intervals of two hours; epinephrine was given and at one time coramine and caffeine. That night a clonic spasm of forty minutes' duration occurred. After forty hours he came out of the coma in a normal state.

The next day Sakel's original article arrived, and translation revealed how great had been the deviation from his technique in the management of this case. The patient, after being subjected for one week to the polarization phase of Sakel's treatment, was discharged as well, January 24. He is completely rehabilitated, has gained in weight and has returned to work.

CASE 2.—An attorney, aged 30, white, admitted to the Tampa Municipal Hospital Jan. 16, 1937, gave a history of nervousness since an attack of influenza eight years before. In August 1933, while in court defending a client for murder, he had experienced his first hallucination in the form of a radio voice talking to him. Shortly afterward, believing he was about to be murdered by a client who had come to his office intoxicated and armed, he had entered into a state of anxious excitement and had finally collapsed. After two months and then ten months in the state hospital, with an intervening six months' period at home, he had come home again only to converse continually with the radio voice and to become threatening and pugnacious, showing homicidal tendencies. He had threatened his mother with knives and had thrown a piano stool at her.

On admission, he was restless, sleepless, irritable, pugnacious and at times noisy. After an initial dose of 20 units of insulin, given the patient fasting at 6 o'clock in the morning, the dosage was increased 5 units daily until a wet shock resulted on administration of 70 units. He had thirty-five shocks, interrupted with Levine feedings until a nasal obstruction prevented, and dextrose was then given intravenously. Following aspiration during the last period of shock, pneumonia developed in the left lung, but he recovered readily. He was discharged March 14.

The patient made a satisfactory social recovery. He is now thoroughly amenable to life at home and is able to do some legal work. Treatment will, however, be resumed in sixty days.

CASE 3.—A white man, aged 35, admitted to the Tampa Municipal Hospital Jan. 18, 1937, was the son of a prominent New England physician and the brother of a New York surgeon. He had been a normal boy and an average student. At the age of 16 years a subacute nephritis had developed, which cleared up entirely six years later when mental symptoms developed. At a state hospital in New England his case was diagnosed as dementia praecox of the catatonic type, and during the thirteen years intervening before he came under my observation this diagnosis was repeatedly confirmed elsewhere. Although apparently interested in some things, he had during all these years remained negativistic, catatonic and completely mute.

When admitted to the hospital, he was physically in perfect health and weighed 200 pounds (91 Kg.). He showed advanced catatonic symptoms but had some impulsive and spontaneous movements. In standing, his position was purely statuesque and he never batted an eyelid; but in all public places he would shake his head almost constantly, at first slowly and then rapidly, much as a bull does before charging.

The initial dose of 25 units of insulin, given the patient fasting, was increased each morning, at first by 5 units and then by 10, until after two months he was receiving 310 units without going into shock. Fortunately, 315 units produced a shock, and in all he had twenty shocks. In the preshock stages he talked and at times sang in a rather incoherent way, but with the termination of each shock mutism returned. Even before a complete shock occurred, the psychomotor restlessness ceased. Before he returned to New England, April 10, the rigidity and statuesque appearance were somewhat ameliorated, and he walked with less cataleptic appearance. In this case of thirteen years' duration the patient showed definite benefit.

CASE 4.—A white woman, aged 23, admitted to the Tampa Municipal Hospital Jan. 26, 1937, had suffered in infancy from colitis and then from infantile paralysis, as a result of which one leg was shorter than the other. She had neither talked

nor walked until she was 2½ years of age. From childhood she had been difficult to manage, and she had failed to develop emotionally into a well regulated adult. Nevertheless, she had completed the junior year of high school. For two years she had been running away, having hysterical tantrums and secluding herself in her room for long periods. Growing more and more infantile in demeanor, she had eventually become negativistic and pugnacious. Several times she had attacked her mother, to whom she attached all her difficulties.

To avoid commitment, she was admitted to the hospital and insulin therapy was instituted. The initial dose of 15 units of insulin was gradually increased to 50 units, the amount necessary to produce a shock. In all, she had four shocks, suffering a convulsion during the last one. She showed continuous improvement and was discharged, February 28. Subsequently she continued to improve at home until April 17, when she lapsed into her former condition.

CASE 5.—A white girl, aged 18 years, was admitted to the Tampa Municipal Hospital Feb. 13, 1937. While attending college in Virginia the previous fall she had broken down nervously, complaining of weakness and exhaustion and becoming at times hysterical or depressed. Having recovered, she had come to Florida in January. A few days after her arrival she began screaming, and in response to all questioning she but screamed the louder. After several days she grew quieter but lost interest in everything, remaining uncommunicative and refusing food.

Treatment in the hospital was begun with 15 units of insulin, and the amount was gradually increased to 50 units. Convulsions followed the first three shock doses, but epinephrine stopped this tendency. After the first wet shock she was normal for thirty minutes. She has had twenty-three wet shocks and now remains normal for two hours after each shock. Also she shows a much better reaction during the intervals between the hypoglycemic states. She is still under treatment.

CASE 6.—A cigar maker, white, aged 45, admitted to the Tampa Municipal Hospital March 13, 1937, was physically in perfect health. For a year he had had paranoid delusions with increasing frequency until he had begun to have hallucinations almost constantly. Voices talked about him wherever he went, he said, and when at work he would hear his wife tell him she was "stepping out" with young men every night. Fearing attack, he had been continually looking around while on the cigar bench and had refused to leave the factory at closing time.

He was apprehended and brought to the hospital for treatment. The amount of insulin given him was increased from 20 to 90 units, but the insulin was neutralized before shock occurred. At the end of two weeks all hallucinations had disappeared and the patient was discharged. His behavior has since been normal.

CASE 7.—A WPA worker, white, aged 30, was admitted to the Tampa Municipal Hospital March 27, 1937, in such a cloudy mental state that he could give no history. He had, however, had pneumonia a year previously and had been under great emotional stress for two years, his wife, father and brother having died of influenza. He had become greatly introverted, suffering many subjective sensations. Improper relationship with a woman had caused moral conflict. Found in a state of excitement digging into his wife's grave to see whether she was not dead but merely placed in a pasteboard box as voices had told him, he had been apprehended and transferred next day to the hospital.

On admission he displayed psychomotor restlessness, stared into space when quiet and showed no emotional reaction. Physical examination was negative. Fasting, he was given 15 units of insulin in the morning and after dinner a larger dose at 3 o'clock. The dosage was increased gradually until 50 units, given to the patient fasting, produced coma, which was interrupted within an hour. He improved after the third day and following the coma was normal. The dose was gradually reduced, and he was discharged April 10 as cured. He has gained in weight and returned to work. In this hysterical episode, recovery was effected very rapidly.

CASE 8.—A college boy, white, aged 22, admitted to the Tampa Municipal Hospital March 18, 1937, complained of phobias and depression. The illness had begun a year previously while he was living alone and working his way through college in Ohio. He had begun to fear on leaving home that

he had left a cigaret or a match burning. Seeing a bottle of oil of wintergreen while eating pie one day, he had begun to worry about being poisoned. He had become obsessed with the fear that everything he ate was poisoned and that poison got on him as he passed the chemical laboratory daily. Despondent and depressed as the phobias had grown more pronounced, he had had to discontinue his college work.

On admission, he gave no history of other illness and physical examination was negative. The blood sugar level was 144, but there was no reduction with Fehling's solution. Fasting, he was given an initial dose of 15 units of insulin in the morning and a second dose in the afternoon, the dosage being increased by 2½ units each time. He improved steadily during three days spent in the hospital and then returned to Winter Haven, Fla., where Dr. R. E. Gilbert continued the treatment in his office, administering the insulin in increasing doses twice daily and neutralizing it three hours later, keeping the patient meanwhile in his office. Shock was not entered into, but the maximum dose of 50 units caused a considerable degree of reaction. By that time the patient was free from all phobias, the depression had entirely disappeared and his mind was functioning better than it had for years. April 14 he returned to Ohio entirely recovered from the obsessive neurosis.

SUMMARY

Hypoglycemic shock therapy in the treatment of dementia praecox merits exhaustive study. As indicated by the accompanying reports of cases, insulin therapy has proved effectual in treating both psychotic and psychoneurotic patients. In accord with the opinion of numerous investigators, it is here suggested that insulin therapy stimulates the carbohydrate metabolism of the central nervous system.

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AN OUTBREAK OF BOTULISM IN WYOMING

CAUSED BY EATING HOME-CANNED WILD MUSHROOMS

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The possibility of dying after eating certain species of mushrooms is so well known that probably few people partake of these delectable comestibles without harboring at least a subconscious thought that perhaps a mistake has been made in the identification, for which they may pay with their very lives. It is a curious fact that in all the literature on mushroom poisoning summarized by Ford,¹ Damon² and Jordan,³ one finds no reference to outbreaks which might have been due to botulism, and in all the literature on botulism we have found only one outbreak due to mushrooms, although Bachman in 1919 "isolated an organism from home-canned mushrooms which was morphologically and culturally like *Clostridium botulinum*" and which, "grown in meat, produced a toxin which when fed to chickens produced symptoms similar to limberneck."⁴

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An actual outbreak of human botulism was ascribed to mushrooms by Meyer⁵ but a full account was never published. We are indebted to Dr. Meyer for a detailed account of this outbreak, which occurred in 1934 in San Francisco. The mushrooms had been purchased by an Italian family in San Jose, boiled for twenty minutes, placed in Mason jars, covered with olive oil and capped tightly. When opened six months later an "air noise" was noticed. The mother ate some of them before they were cooked and died from botulism in three days; three other members of the family ate them on two different days after they were cooked and suffered no ill effects. Unfortunately, none of the original material was available for laboratory examination, but Dr. Meyer saw the case personally and was satisfied that it was typical botulism, and the connection with the mushrooms was fully established epidemiologically.

Dr. E. C. Dickson of the Stanford University Hospital, San Francisco, who has had a long and extensive experience with botulism, stated in reply to our inquiry that he had never encountered botulism in connection with mushrooms.

Probably one reason for the scarcity of botulism after eating mushrooms is that, although they must frequently harbor the spores of *B. botulinus* from the soil, they are generally eaten while fresh or after preservation by drying and only rarely after home canning.

THE PRESENT OUTBREAK

The present outbreak occurred in the family of B. R., a rancher living about 5 miles from Cokeville, Wyo.

Thursday afternoon April 9, 1936, one of us (R. B. L.), while on his way by team and sleigh to visit a ranch several miles from Cokeville, was stopped by Mr. R., who lived nearby and requested to call on his return trip as one of Mr. R.'s children was not feeling well. On returning one hour later at 5 p. m. the father and mother were found to be greatly alarmed at the obviously precarious condition of their little girl, Joyce, aged 2½ years, who was evidently dying from respiratory failure. The pulse was strong and regular but no air was passing into or out of the lungs. Quick examination showed that there was no obstruction of the air passages. Lobeline was administered hypodermically and artificial respiration was attempted. Air passed freely to and from the lungs during artificial respiration but there was no natural respiratory response, and the heart action weakened and ceased in about four minutes. The parents said that the child had been sick only since morning; she had vomited a little and seemed drowsy. They did not think she had any fever.

Another girl, Alidde, aged 5½ years, was lying on the bed apparently unconcerned in what was going on. This naturally aroused suspicion but the now hysterical parents, on being questioned, denied that she was ill. Her pulse was found to be normal but she was staring glassily into space and did not wish to be disturbed; she would not answer questions. She was therefore raised to a sitting posture, whereupon her head dropped forward on her chest; she could not be induced to hold her head up, owing apparently to a definite paralysis of the muscles of the neck, simulating and immediately suggesting the "limberneck" of fowls, which is well known to be a form of botulism.

The parents were then questioned about having eaten home-canned or preserved foods. They first answered in the negative but a neighbor reminded them that they had been eating home-canned mushrooms. Mr. R. admitted this but said that they had been eating them for years and he was sure that they had nothing to do with the illness of his children. Further questioning elicited the fact that they had also been eating, among other things, home-made cheese, commercially canned tomato paste and home-cured sausages. Particular attention was directed to the mushrooms because a small remaining portion

appeared to be spoiled. Some of these mushrooms had been served at the evening meal Tuesday April 7, two days before the children became ill. All these foods were saved for examination.

Neither of the parents nor a 4 months old nursing infant showed any symptoms at this time. The infant was taken from the breast and they were advised to bring Alidde at once into the Lincoln County Miner's Hospital 45 miles away at Kemmerer, Wyo., but owing to the poor roads, which were impassable by automobile and difficult even for horses and sleigh, they did not arrive until 3 a. m., April 10.

At this time the sick child was reexamined by two of us (R. B. L. and J. R. N.). She showed marked prostration and was unable to answer questions except by whimpering sounds. She insisted on lying on her right side and when turned on her back began to struggle, gasp and choke. When water was placed in her mouth she was unable to swallow. The pupils were dilated and would not respond to light. There was marked muscular weakness so that she could neither sit up nor support her head when she was raised from the bed. The patellar reflex, however, was practically normal. There was no nausea, vomiting or looseness of the bowels. Examination of the heart, lungs and abdomen gave negative results. The clinical diagnosis of botulism was thus reaffirmed. A high enema and stimulants were administered and botulinus antitoxin was ordered from Denver. This serum was delivered by airplane⁶ and had to be dropped at Kemmerer by parachute because there was no landing field, but the child died from respiratory paralysis a short time before, at 3:32 p. m.

Both parents were tested for skin sensitivity to horse serum; Mrs. R., being found not sensitive, was given intramuscularly 50 cc. of botulinus antitoxin (type A, 6,125 units plus type B, 6,125 units). Mr. R., on the contrary, showed a positive skin reaction; several small doses of normal horse serum were administered at hourly intervals, gradually increasing to 10 cc., which gave no reaction. He was then given about 25 cc. of botulinus antitoxin (type A, 3,000 units, type B, 3,000 units), whereupon a marked serum reaction developed, with excessive perspiration, prostration, pulse 120, respiration 30, temperature 96 F. and generalized urticaria. Six minims (0.4 cc.) of epinephrine intravenously checked this reaction.

All the family were kept under close observation for one week. Neither Mrs. R. nor the baby ever showed any symptoms of botulism but Mr. R. complained of slight difficulty in swallowing during the second week, from which he completely recovered.

Subsequent to the outbreak it was learned that the mushrooms grew wild on the R. ranch. They were gathered during the spring of 1935, packed cold in quart glass jars with a little garlic and one teaspoonful of salt to each jar, and then steamed for four hours in a wash boiler.

On opening the mushrooms for use, Mrs. R. poured off the liquor, fried them in butter with tomato paste, garlic and spice, and served them hot. There was no suspicion of spoilage. How long they were heated is not known, but it is thought that they were removed from the fire almost at once; thorough heating would surely have destroyed the toxin.

LABORATORY STUDIES

A small remnant of the home-canned mushrooms was received at the laboratory in Denver, April 13. The contents of this jar were macerated, gassy and sour smelling. Microscopically there were numerous large gram-positive rods, gram-positive cocci and streptococci. The juice was easily filtered through paper and a Mandler filter. This filtrate contained a weak type A toxin of *Bacillus botulinus*; 3 cc. injected subcutaneously into a 400 Gm. guinea-pig produced the characteristic muscular weakness in forty-eight hours and death in seventy-two hours. This action was prevented by simultaneous injection of the same amount in a second animal with 1 cc. of type A botulinus antitoxin, while type B antitoxin had no preventive effect. These observations confirmed the clinical diagnosis of botulism.

No effort was made to isolate the various aerobic bacteria which were present, but a powerfully toxigenic strain of *Bacillus botulinus*, type A (No. 9184) was recovered from the mushrooms. One cc. of a dilution of 1:100,000 of a Mandler filtrate

5. Meyer, K. F.: The Frequency of Botulism, California & West. Med. 44: 388 (May) 1936.

6. Dr. A. A. Hermann of Denver, the Denver Post, and Governor Edwin Johnson of Colorado, cooperated in providing the serum and in its delivery by airplane.

prepared from a four day dextrose broth culture of this strain of *B. botulinus* injected subcutaneously killed a 250 Gm. guinea-pig in less than forty-eight hours with typical symptoms of botulism.

This raised the questions as to whether *B. botulinus* is capable of producing strong toxin in experimentally canned mushrooms and whether associated staphylococci or streptococci may interfere with toxin production. Fresh commercial mushrooms (*Agaricus campestris*) were rinsed, boiled ten minutes to destroy the tyrosinase and so prevent discoloration. They were then chopped fine, covered with water and a thin layer of vas-par in 250 cc. Erlenmeyer flasks half full, and sterilized in the autoclave at 120 C. for twenty minutes. Just before inoculation they were steamed in the Arnold sterilizer for twenty minutes.

Three such flasks of experimentally "canned mushrooms" were inoculated by gently displacing the vas-par seals. Each flask was inoculated with *B. botulinus* No. 9184 (type A) from the aforementioned outbreak, a 5 day old culture being used in deep brain medium suspended in sterile water and boiled for two minutes to destroy toxin and vegetative rods. A portion of this suspension was filtered through a Berkefeld filter before heating; 1 cc. of this filtrate killed a 450 Gm. guinea-pig with symptoms of botulism over night. Portions of the same filtrate boiled only one minute and two minutes (94 C.) failed in doses of 1 cc. to produce symptoms in five days in inoculated guinea-pigs. These controls insured that no preformed toxin was inoculated into the flasks of "canned mushrooms." One flask received no further inoculation; a second flask received in addition to *B. botulinus* a heavy inoculation of *Micrococcus aureus*, while a third flask received one of *Streptococcus pyogenes*. The upset vas-par seals were quickly reset by cautious melting with the Bunsen flame.

They were incubated at 37 C. Gas production started on the second day and continued vigorously throughout the entire period of incubation of seven days. When opened, all the flasks emitted a foul rotten odor. Aerobic subcultures on blood agar slants failed to show any unintended contaminations, but the inoculated staphylococci and streptococci were easily recovered. The fluid portions of all the flasks were easily filtered, yielding clear light brown filtrates.

Each of these filtrates was shown to contain approximately 10,000 minimum lethal doses of botulinus toxin per cubic centimeter by appropriate tests on guinea-pigs weighing from 525 to 600 Gm., thus proving that experimentally "canned mushrooms" provide a suitable nutritive pabulum for growth and production of a powerful toxin by *B. botulinus* and that the associated presence of *Micrococcus aureus* or *Streptococcus pyogenes* does not interfere with the formation of such toxin. We are unable to explain the weak toxin found in the home-canned mushrooms.

About twenty minutes after the death of the second child, a specimen of blood had been drawn. This was saved and was subsequently forwarded to the laboratory in Denver, where it was received April 15.

Both aerobic and anaerobic cultures made from this blood were sterile and a small guinea-pig inoculated with 1 cc. subcutaneously failed to show any symptoms. We have never been able to demonstrate botulinus toxin in the blood taken post mortem, but Glasmann⁷ succeeded repeatedly in our laboratory in demonstrating the toxin in extracts from the livers of animals that died from experimental botulism. This method has never been adequately tested as a means of postmortem diagnosis in human beings but should be tried whenever possible.

COMMENT

It is noteworthy that the possibility of mushroom poisoning in this outbreak was not even considered, botulism having been correctly diagnosed almost at once from the clinical signs.

It may be considered, however, that possibilities exist for clinical confusion of botulism and mushroom poisoning (mycetismus). First of all, the onset of symptoms in botulism only rarely occurs earlier than twelve hours after ingestion of the toxin, and the symp-

toms in order of appearance are diplopia and dilatation of the pupils of the eyes with dimness of vision, vertigo, aphonia, muscular weakness, dysuria, constipation, salivation due to strangulation, and respiratory failure. Nausea, abdominal cramps and vomiting occur occasionally,⁸ but diarrhea rarely if ever occurs. Terminal convulsions may be observed occasionally but never early in the disease. Patients suffering from botulism generally remain conscious until a few seconds before they die, and the heart is often observed to beat a few seconds after respiration ceases, as in the present instances. The mortality is high, between 60 and 80 per cent.

Mycetismus may be discussed briefly under five headings, as proposed by Ford.¹

In mycetismus gastro-intestinalis caused by certain species of *Lactarius*, *Entoloma* and *Lepiota*, all the symptoms are limited to nausea, abdominal cramps of variable intensity, vomiting and diarrhea. Neural symptoms never occur, and the mortality is low. There is no danger of confusion with botulism, but similar symptoms might be caused by other forms of food poisoning, notably those due to staphylococci, *Bacterium paratyphosum* or *Bacterium enteritidis*.

In mycetismus choleraformis, which is caused by *Amanita phalloides* and probably also by *Pholiota autumnalis* and *Hygrophorus conicus*, the onset is generally characterized in from ten to fifteen hours by violent abdominal cramps, nausea, vomiting and diarrhea, rapidly followed by loss of strength, the appearance of casts in the urine due to damaged kidneys, and heart failure. Liver function is also impaired. The mortality is high, about 50 per cent. Neural symptoms are absent and there is little danger of confusion with botulism.

In mycetismus nervosus, which is due to those mushrooms containing muscarin, such as *Amanita muscaria*, *Amanita pantherina* and certain species of *Inocybe* and *Clitocybe*, violent gastro-intestinal symptoms may appear within two or three hours, accompanied by contracted pupils, profuse perspiration and salivation, localized or generalized convulsions, delirium, hallucinations and death in coma with acute dilatation of the heart. Unless treated early with atropine, the mortality is high. There is little danger of confusion with botulism.

In mycetismus sanguineus, caused by *Helvella esculenta*, the outstanding symptoms are hemoglobi-nuria and abdominal distress followed by a mild persistent jaundice. The mortality is low and confusion with botulism should never occur.

The last form of mushroom poisoning, mycetismus cerebialis, caused by certain species of *Panaeolus*, is possibly the only one likely to be confused with botulism because of the disturbances of vision and the staggering gait. However, the earlier onset, from four to five hours, the exhilarating intoxication and the low mortality should serve clearly to distinguish it from botulism.

SUMMARY

In an outbreak of botulism, type A, due to home-canned wild mushrooms of unknown species in Wyoming, two children died but the parents were saved, probably by the accident of a weak toxin and the timely prophylactic administration of botulinus antitoxin.

8. Hall, I. C., and Gilbert, O. M.: A Survey of Botulism in Colorado with a Discussion of Recent Outbreaks, *Colorado Med.* 26: 233 (July) 1929. Hall, I. C.: Further Outbreaks of Botulism in the Rocky Mountain Region, *Am. J. Hyg.* 17: 235 (Jan.) 1933; New Outbreaks of Botulism in Western United States, *Food Research* 1: 171 (March-April) 1936.

7. Glasmann, V. E.: The Postmortem Diagnosis of Botulism, *University of Colorado Studies* 20: 36, 1932.

This is believed to be only the second outbreak of botulism caused by home-canned mushrooms and the first in which both the toxin and the bacillus were demonstrated by laboratory procedures.

In spite of the comparatively weak toxin, a strongly toxigenic strain of *B. botulinus* type A was recovered from the mushrooms, and both pure cultures and cultures of this mixed with *Micrococcus aureus* and *Streptococcus pyogenes* produced normally potent botulinus toxin.

A brief comparative summary of the differential symptoms of botulism and mushroom poisoning (mycetismus) indicates that these conditions need never be confused clinically.

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ENCYSTED TRICHINAE

THEIR INCIDENCE IN A PRIVATE PRACTICE AND THE BEARING OF THIS ON THE INTERPRE- TATION OF DIAGNOSTIC TESTS

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Ever since those days when the early anatomists dulled their scalpels on the calcified cysts of trichinae in the muscles of cadavers, trichinosis has been a more common disease of man than generally has been recognized. Just how common it is in North America is not known but recent literature indicates that it is of far more frequent occurrence than most physicians have realized. In the United States many physicians apparently have thought that federal meat inspection regulations protected citizens, but there is evidence that critical evaluation of the actual effect of these regulations has been lacking. It is perhaps not sufficiently realized that only a part of the hogs consumed in the United States are killed in supervised abattoirs¹ and that the regulations do not provide for microscopic examination of the tissues of hogs.² Further, it may not be generally known that somewhere from 3 to 6 per cent of hogs are infected with trichinae.

The incidence of human infection with trichinae is still not known. The clinical diagnosis is attended with difficulty and great inaccuracy. Hall³ has collected more than forty diseases with which trichinosis has been confused and recently Otto and Janney⁴ have reported an outbreak in a family in which diagnoses including typhoid, influenza, encephalitis, mumps and alco-

holism were erroneously made. At present the only basis for establishing the incidence of the infection is that founded on examination after death. Unfortunately there have been but few such studies; a summary of these is given in table 1.

In addition to these studies Osler⁵ recorded that in 1,000 postmortem examinations performed by him in and about Baltimore he casually observed trichinae six times, and Mallory⁶ observed them twice without microscopic examination in 1,103 postmortem examinations done in Boston.

The exact method of examination is important, since the results will be influenced by it. It is fairly clearly established that the muscles of the thorax and neck are more likely to be invaded than other muscles; hence, these should be examined. Gross observation is almost valueless, since cysts will not be seen unless they are heavily impregnated with calcium and are present in large numbers. Sectioning will reveal but a small percentage. Queen⁶ found that, if large numbers of sections which have been specially prepared are studied, one can detect trichinae in only about a fourth of the muscle specimens in which the worms are actually present. A much better and easier method is to examine muscle in a compress with a low power objective. According to the care used and the amount of tissue employed, a fair number of trichinae will be discovered. Queen found 38 per cent positive by using two fields, 4 by 6 cm. If larger and more fields are examined, the increase in positives will be somewhat proportional. If large amounts of muscle are digested and the larvae extracted, more muscle may be used and more trichinae will be found. It may be safely stated, therefore, that the reported incidence of infection with trichinae is much lower than was actually present and was somewhere in the neighborhood of from 15 to 20 per cent. This is ample proof that citizens of the United States frequently eat raw or undercooked pork.

Of great significance is the observation that statistics from Europe, especially Germany, a country generally believed to exhibit a high incidence of trichinosis, indicate a much lower incidence of infection among bodies examined at necropsy or on the dissecting tables than in the United States. Indeed, if the surveys made in Germany are to be compared with those made in the United States, one would conclude that the incidence is about five times greater in the United States than in middle Europe.

The next question is whether the samples examined are representative of the population of today. It is evident that among the observations reported are only five made in the last thirty-five years and that those have come from charity hospitals and dissecting rooms and from only a few regions of the country. Only one survey was made in the northwestern part of the United States and that was of bodies found on the anatomic dissecting tables. With the exception of a few cadavers in St. Louis, a larger series in Minneapolis, a few hospital postmortem examinations made in Denver and one series in San Francisco, no studies have been made west of Buffalo except in New Orleans, and this is the only record from the entire South. Cadavers cannot be considered representative of the population.⁷ They

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1. Under bureau inspection 28,506,019 swine were slaughtered in the last fiscal year. No one knows the number slaughtered other than under bureau supervision.

2. The following embrace the essential regulations governing the inspection of hog meat: The regulations governing the meat inspection of the United States Department of Agriculture require that no article of a kind prepared customarily to be eaten without cooking shall contain any muscle tissue of pork unless the pork has been subjected to treatment prescribed by the chief of the bureau, live trichinae. All parts of the muscle tissue of . . . to heat at a temperature not lower than 137 F., or shall be refrigerated at a temperature not higher than 5 F., for a continuous period of not less than twenty days, or shall be treated by curing as hereinafter prescribed. The pork or the articles of which it is an ingredient, after chilling or preliminary freezing, shall be stored in freezers maintained during the twenty-day period at a temperature not higher than 5 F. If the meat is stored in tierces it is necessary to make a sufficient allowance of time, namely, ten days, for the temperature of the meat in the center of the tierces to drop to the required level. Several methods of curing such meat as hams and pork butts intended to be used without cooking are also as prescribed. These methods vary somewhat according to the size of the pieces of meat, whether they are ground or whole. The amount of curing ingredients and how such ingredients are to be applied, as well as the time and temperature, are also regulated. No deviation from prescribed methods is permitted.

3. Hall, M. C.: Personal communication to the author.

4. Otto, G. F., and Janney, J. H., Jr.: A Study of Trichinosis in a Maryland Family, *Am. J. Hyg.* 25:76-85 (Jan.) 1937.

5. Quoted by Williams.

6. Queen, F. B.: The Prevalence of Human Infection with Trichinella Spiralis, *J. Parasitol.* 18:128 (Dec.) 1931.

7. Hall and Collins (Studies on Trichinosis: I. The Incidence of Trichinosis as Indicated by Postmortem Examination of 300 Dissections, *J. Parasitol.* 22:532-533 (Dec.) 1936) thought the cadavers were representative of the general population. If they were, they differed markedly from cadavers coming into the dissecting rooms in institutions with which I am familiar.

represent those who are down and out, who live from hand to mouth and of necessity eat inferior and poorly prepared food of all sorts. In addition, they represent persons who are much older than the general population and frequently they are foreign born.

Patients from the charity hospitals are also not altogether typical of the population, since large numbers are foreign born and they too have lived, at least in the past, below the standard usually considered typically American.

With the hope of shedding some light on this matter I examined muscles from bodies of 220 patients of the Mayo Clinic who had died of various causes. While

It is impossible to give figures that would be indicative of the frequency of clinical trichinosis in this country. Until 1898 the diagnosis had been made in something like 900 cases and since then hundreds of cases have been observed. It is evident that in some cases the diagnosis has been trichinosis when actually the disease was not present and many persons infected with trichinae have never been given a diagnosis of trichinosis. It may be concluded, therefore, that clinical trichinosis is actually relatively common in the United States.

Unfortunately, there are few or no facts on which to base a true estimate of the infection among hogs.

TABLE 1.—Summary of Reports of Examinations Made for Trichinae After Death

Year	Author	Place	Number of Necropsies	Infected		Method of Examination
				Number	Per Cent	
1881	Glazier, quoted by Williams.....	Newark, N. J.	100	1	1	Necropsy; muscles examined microscopically
1881	Glazier	New York	150	3	2	
1881	Glazier	Philadelphia	40	1	2.5	
1891	Whelpley	St. Louis	20	1	5	Cadavers, microscopic examination
1894	Thornabu	Buffalo	21	3	14.3	Cadavers, microscopic examination
1901	Williams	Buffalo, Philadelphia	505	27	5.3	Necropsy, pressed out bits of muscle examined microscopically
1901	Queen ^a	Baltimore, Denver				Digestion of 50 Gm. of diaphragm
1931	Queen	Rochester, N. Y.	344	59	17.5	Cadavers, muscles compressed
1931	Queen	Boston	59	16	27.6	
1934	Riley and Scheiffel; J. A. M. A. 102:1217 (April 14) 1934	Minneapolis	117	20	17.9	
1936	Hinman; New Orleans M. & S. J. 88:445 (Jan.) 1936	New Orleans	200	7	3.5	Digestion of 2 inches square of diaphragm
1936	Hall and Collins ⁷	Washington and Baltimore	300	41	13.7	Cadavers, compression and digestion
1936	McNaught and Anderson; J. A. M. A. 107:1446 (Oct. 31) 1936	San Francisco	200	48	24	Digestion of 50 Gm. of diaphragm
Total.....			2,056	227	11.0	

these patients had come from various states, most were from the North and the Middle West. They had been for the most part well to do but were not selected in any way. They died in 1935 or 1936. Almost all were adults. Pieces of the following muscles were procured: diaphragm, intercostal muscles, rectus abdominis and sternocleidomastoid. About 2 Gm. of each was compressed and searched with a binocular microscope equipped to magnify 25 times.

The results are seen in table 2, in which is recorded the degree of infection in the seventeen bodies (8 per cent of the total examined) in which trichinae were found.

It can be seen that although the diaphragm contained more trichinae than other muscles it was not always found to be involved in these examinations. A summary of cases can be had in table 3. It can be seen that symptoms suggestive of a history of infection were present in only seven, but in these the symptoms were readily explained on the basis of other conditions found. History of muscular pains is commonly enough given by persons in whose muscles trichinae are not found. Unfortunately, eosinophil counts were made in only five cases, but in these there was little to suggest infection. In short, the evidence here, as in the series reported by others, indicates that although infection with trichinae is common enough it is frequently, perhaps more often than not, subclinical in intensity and may not produce persistent eosinophilia. On the other hand, many cases of clinical trichinosis go undiagnosed.

In the light of previous work and from the observation that the infection of the persons whose bodies were examined by me was light, it seems safe to assume that, had the examinations included digestion or microscopic examination of from 50 to 100 Gm. of muscle, more larvae would have been found; therefore, the actual incidence of infection can be fairly safely assumed to have been of the order of 12 to 15 per cent.

Bushnell⁸ said that the incidence was 1.95 among hogs inspected from 1898 to 1906, but recent figures are not available. It is assumed that at present from 2 to 4 per cent of hogs in the United States are infected. Hence it is impossible to estimate the exposure to which the population really is subjected. Even the method by which hogs are infected is not clear. Recently it has been generally thought that rats and mice probably act

TABLE 2.—Number of Trichinae Found in 2 Gm. Samples of Various Muscles, in Examination of 220 Bodies

Body	Diaphragm	Inter-costal Muscles	Sterno-cleido-mastoid	Rectus Abdominis
1.....	—	—	3	3
2.....	1	0	2	1
3.....	0	0	6	0
4.....	0	0	1	0
5.....	0	0	1	0
6.....	3	0	0	0
7.....	1	0	—	1
8.....	3	3	1	0
9.....	5	3	2	1
10.....	0	1	1	0
11.....	0	0	0	1
12.....	2	2	0	1
13.....	0	0	0	1
14.....	2	0	0	0
15.....	0	0	0	1
16.....	1	1	0	0
17.....	2	—	0	1
Total.....	20	10	17	11
Average per 100 Gm. of muscle	63	37	54	32

as reservoirs and infecting agents, since hogs eat these rodents. Examination of rats in slaughter houses has revealed that large numbers are infected, and those in sewers of cities are even more heavily infected. It is not clear, however, just what part these animals play in the general disseminating of the disease among hogs raised in the rural districts.

8. Bushnell, W. F.: Trichinosis as a Public Health Problem, *Journal-Lancet* 55: 42-46 (Jan. 1) 1935.

Since introduction of the skin test and precipitin test for the diagnosis of trichinosis, great increase in interest in the disease has been manifest. More specific knowledge of the significance of the tests is urgently needed. It is reasonably certain that in the presence of acute or even chronic trichinosis the tests give a high percentage of positive cutaneous reactions, but the proper dilution of the antigen to use is not established. Friedlander⁹ criticized Kilduffe¹⁰ for using a dilution of 1:100 and pointed out that the test was more specific when higher dilutions were employed. It has been suggested that the dilution should be 1:10,000 for detecting acute cases. McCoy, Miller and Friedlander¹¹ obtained 70 per cent positive reactions in thirty-six early cases at this dilution and 92 per cent positive reactions at a dilution of 1:500. Spink and Augustine¹² in thirty-four tests found thirty-three positive with a dilution of 1:10,000 but it is not clear that in all cases bona

gave positive skin reactions with dilutions of 1:10,000 and 18 per cent gave positive results with a dilution of 1:5,000; of forty-seven controls tested in San Francisco, 4 per cent gave positive reactions with a dilution of 1:10,000 and 6.5 per cent with a dilution of 1:500. In Louisiana of ninety-two persons tested, all infected with the whipworm, 18 per cent gave positive results with a dilution of 1:10,000 and 62 per cent with a dilution of 1:500. Augustine and Theiler found that, of forty Columbians tested, twenty-eight (70 per cent) gave positive skin tests with a dilution of 1:100; even with a dilution of 1:500 an equal number were positive. Kaljus found only 5 per cent "false" positives in testing 109 controls, using dilutions of from 1:1,000 to 1:2,000. He stated that the presence of whipworms did not influence the test.

From these observations it would appear that the skin test is usually positive in acute trichinosis even when

TABLE 3.—Clinical Data Concerning the Same Persons as Those Represented in Table 2

Patient	Age	Sex	Residence	Occupation	Eosinophils, per Cent	Suggestive History	Diagnosis
1	84	Q	Minnesota	Housewife	1.5-8.0	Pain in muscles and joints	Pernicious anemia, arthritis
2	83	Q	Minnesota	Housewife	...	...	Arteriosclerosis; bronchiectasis
3	68	Q	Iowa, California	Hotel owner	...	Pains in muscles	Arteriosclerosis; myasthenia gravis
4	41	Q	South Dakota	Housewife	...	...	Leiomyoma of uterus, bronchopneumonia
5	48	Q	Ontario	Salesman	2.5	...	Carcinoma of colon, chronic ulcerative colitis
6	69	Q	Minnesota	Farmer	...	...	Trauma of head
7	60	Q	Minnesota	Laborer	...	Lumbar pains	Trauma of chest
8	32	Q	Iowa, Minnesota	Housewife	...	Rheumatic fever at 21 yrs.	Rheumatic fever, pulmonary infarcts
9	57	Q	New York	Housewife	...	Pain in shoulders	Cholecystitis with stones
10	31	Q	Manitoba	Stenographer	0	Pain in left leg	Subacute pericarditis, bronchopneumonia
11	33	Q	Italy, Wisconsin	Dentist	0.5	...	Carcinoma of rectosigmoid
12	42	Q	Arkansas	Bookkeeper	...	...	Meningioma
13	56	Q	Oklahoma	Well driller	...	...	Hypertensive heart
14	27	Q	Minnesota	Housewife	0	...	Pneumonia
15	47	Q	Minnesota	Laborer	...	...	Traumatic injuries
16	57	Q	Illinois	Housewife	...	Rheumatic fever at 19 yrs.	Adenomatous goiter
17	75	Q	Minnesota	In asylum	...	...	Carcinoma of lung

fide trichinosis was present; at least the parasite was not found in all the sections taken for biopsy. Drake, Hawkes and Warren¹³ made tests in twenty-six cases in which a clinical diagnosis of trichinosis had been made and obtained positive results with a dilution of 1:10,000. Augustine and Theiler¹⁴ found positive reactions at this dilution in nine of ten cases, but Heathman's¹⁵ experience was not so favorable. She tested forty-four patients and obtained a positive response in only 50 per cent with a dilution of 1:100 and only 12.3 per cent with a dilution of 1:6,000 and 1:500. The precipitin test gave 68.2 per cent positive reactions in thirty cases. Kaljus¹⁶ tested sixty-six persons who had early trichinosis and found 74 per cent positive skin tests with dilutions of 1:1,000 and 1:2,000.

The great difficulty with the skin test is the lack of observations on which to establish its value when the result is negative and lack of knowledge concerning the incidence of positive reactions it gives in the general population. McCoy, Miller and Friedlander found that of 104 so-called controls in Rochester, N. Y., 9 per cent

the antigen is used in high dilutions, and evidence indicates that years after acute infection a positive skin test still persists, but for how long, and how sensitive the skin remains to the antigen, is unknown. If infection is as common as microscopic examination indicates that it is, the test should be positive more frequently than evidence shows it to be and if the test does reveal light and long-standing infections, its interpretation when positive must be made with great caution. This suggests that in many cases in which a diagnosis of trichinosis is made on the basis of skin tests, and without biopsy, it may not be correct. Recently I saw a patient who had muscle pains, fever and an eosinophilia which at first was 14 per cent. The eosinophils increased to 21.5 per cent after ten days, and edema of the face and hands developed. A skin test with a dilution of antigen of 1:5,000 gave a slightly positive reaction, yet a liberal specimen of pectoral muscle, carefully examined, failed to reveal the presence of trichinae. The eosinophilia disappeared as rapidly as it had risen. The diagnosis of trichinosis had to be withdrawn.

Eosinophilia, especially rapidly increasing eosinophilia, is of extreme importance and probably is more important than skin tests. If a positive skin reaction is present at a dilution of antigen of 1:10,000, if eosinophilia is more than 10 per cent and is increasing, and if clinical symptoms of trichinosis are present, including fever, transverse facial edema and muscular pain, the evidence is certain enough to justify the clinical diagnosis of trichinosis.

SUMMARY

Although this is the only recorded series of microscopic examinations made on a relatively large number of unselected patients in private practice, it is clear that

9. Friedlander, R. D.: The Present Status of the Diagnostic Intradermal Test for Human Trichinosis, *Am. J. M. Sc.* 188: 121-123 (July) 1934.

10. Kilduffe, R. A.: The Bachman Intradermal Reaction in Human Trichinosis, *Am. J. M. Sc.* 186: 802-808 (Dec.) 1933.

11. McCoy, O. R.; Miller, J. J., Jr., and Friedlander, R. D.: The Use of an Intradermal Test in the Diagnosis of Trichinosis, *J. Immunol.* 24: 1-23 (Jan.) 1933.

12. Spink, W. W., and Augustine, D. L.: The Diagnosis of Trichinosis with Special Reference to Skin and Precipitin Tests, *J. A. M. A.* 104: 1801-1805 (May 18) 1935.

13. Drake, E. G.; Hawkes, R. S., and Warren, Mortimer: An Epidemic of Trichinosis in Maine, *J. A. M. A.* 105: 1340-1343 (Oct. 26) 1935.

14. Augustine, D. L., and Theiler, Hans: Precipitin and Skin Tests as Aids in Diagnosing Trichinosis, *Parasitology* 24: 60-86 (March) 1932.

15. Heathman, Lucy S.: Laboratory Diagnosis in Trichinosis, *Am. J. Hyg.* 23: 397-409 (March) 1936.

16. Kaljus, W. A.: On the Practical Value of the Intradermal Reaction with the Trichinellasis Antigen for the Diagnosis of Trichinosis in Man, *Puerto Rico J. Pub. Health & Trop. Med.* 11: 763-790 (June) 1936.

they, although perhaps not so frequently infected with trichinae as are patients from economically lower walks of life, nevertheless often harbor the parasite. Exposure must be common.

From available knowledge it is evident that, in the United States, from 10 to 20 per cent of the adult population have acquired trichinae. Although some of these persons have experienced more or less typical symptoms of trichinosis, most of them never have had any signs suggestive of the infection having taken place. This makes interpretation of the skin and precipitin tests difficult, since it is not known whether immunity follows mild or even severe infection with this parasite.

Eosinophilia of more than 10 per cent, and especially rapidly rising eosinophilia, should suggest trichinosis. If, in addition, the skin test is positive in a dilution of antigen of 1:10,000, if a history of eating undercooked pork is obtained, and if typical symptoms are present, the diagnosis would appear almost certain. The final proof must still remain the demonstration of the worms in the body of the victim.

In spite of the fact that trichinosis has not received widespread consideration in the United States, one must conclude, on the basis of studies already made, that it is one of the major public health problems in this country and that there is still need of emphasizing the importance of cooking pork thoroughly before it is consumed.

HOW LARGE IS THE HYPERPLASTIC PROSTATE?

REPORT OF THE LARGEST HYPERTROPHIED PROSTATE EVER SURGICALLY REMOVED

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SALT LAKE CITY

There is no clinical problem concerning which one may find a wider divergence of opinion among competent urologic surgeons at present than that of the applicability of transurethral resection to various types of obstructing prostates. At one extreme are those who assert that transurethral methods are properly applied only for sclerosis of the bladder neck (median bar) and prostatic carcinoma. At the other end of the gamut is a group, many of whose members are fortified by abundant experience, who claim to be able to resect successfully any prostatic obstruction that will permit passage of the resectoscope into the bladder.

Whatever may be the ultimate outcome of this divergence of opinion, the question at issue has lent practical value to a consideration of the actual size attained by the hyperplastic prostate. The early writers on the subject of transurethral prostatic resection were captivated with the idea that the removal of a very small amount of tissue would suffice—a mere nibbling at the lobes, or “cutting a groove” from the trigon down to the verumontanum. Growing experience, with its painful lessons afforded by incomplete results, has convinced those who persist with transurethral resection that uniform success can be achieved only by the removal of a considerable portion of the hyperplastic mass. Hence it is pertinent to inquire how much tissue the resectionist can remove through the urethra and what relationship this amount bears to that which remains.

Cunningham's "Text-Book of Anatomy"¹ describes the size of the normal prostate in terms of dimensions,

with no mention of weight. "Gray's Anatomy"² says of the normal prostate, "Its weight is about 8 Gm." This is curiously at variance with several other authorities consulted. Keyes,³ for example, gives the weight as from "16 to 24 grams" and Hinman⁴ says: "The normal gland weighs about 23 Gm. The average enlargement will not exceed 85 Gm., even the larger specimens weighing well under 200."

As regards the size attained by hyperplastic obstructing prostates, Alcock⁵ remarks in a summary of his experience with transurethral resection:

How much does the average hypertrophied prostate that is removed surgically actually weigh? These prostates vary greatly in size. A gland the size of a golf ball weighs 43 Gm., one the size of a hen's egg weighs 51 Gm., one the size of a lemon weighs 140 Gm., and one the size of an orange weighs 314 Gm. In the records of my own prostatectomies the weight of the gland removed was recorded in each of 433 cases; the largest was 270 Gm. and the average weight of the 433 was 38.3 Gm. Therefore, if with the resectoscope one removes from 15 to 35 Gm., one is removing a very large part of the average gland. In 85 per cent of the first hundred cases that I did by the resection method I removed less than 10 Gm. of tissue; in the last hundred—the eighth hundred—more than 10 Gm. was removed in 90 per cent of the cases, and in only 2 per cent was less than 5 Gm. removed. I know from my experience that it is absolutely essential to remove an adequate amount of tissue and I find as my experience has grown that I am removing larger and larger amounts of the gland. The largest amount removed at one sitting was 54 Gm.; the largest amount removed from one patient was 134 Gm. in three sittings. In the bulk of the cases now being done, from 15 to 35 Gm. is removed. . . . In general it may be said that from one third to three fourths of the gland is removed.

Emmett⁶ recently reported the transurethral removal of 112 Gm. of tissue from an "enormous prostate gland" of high vascularity. The operation was carried out in two stages, the bleeding being markedly reduced at the second operation by intraprostatic injection of solution of posterior pituitary.

The following case report is noteworthy because it concerns, as far as can be determined, the largest hypertrophied prostate that has ever been surgically removed and the second largest prostate on record in the world's literature:

G. A. M., a retired farmer, aged 72, of Swedish ancestry, was seen first March 13, 1936, in consultation with his family physician. The patient was in acute urinary retention and had been brought to the hospital when efforts to catheterize him at home had been unavailing.

During the preceding ten years the patient had noticed gradually increasing frequency, nocturia, urgency, and diminishing caliber of the urinary stream. From time to time there was some dysuria. For about a year he had been obliged to catheterize himself occasionally. Although this sometimes caused mild bleeding, he never before had failed to insert the catheter into the bladder. His general health remained fairly good, except for the usual disabilities of his age. Aside from the urinary difficulty his only complaint was of a mild chronic cough.

His past medical history was uneventful, with no serious illnesses. His wife and seven children were living and well. The family history was irrelevant as far as any tendency to prostatism was concerned. His father died at 80 of "old age."

At the time of admission to the hospital the patient, who was well developed and reasonably well nourished, was badly dehydrated and complained bitterly of distress from a full bladder.

2. Gray's Anatomy, ed. 22, Philadelphia, Lea & Febiger, 1930, p. 1245.

3. Keyes, E. L.: Urology, New York, D. Appleton & Co., 1928, p. 226.

4. Hinman, Frank: The Principles and Practice of Urology, Philadelphia, W. B. Saunders Company, 1935, p. 871.

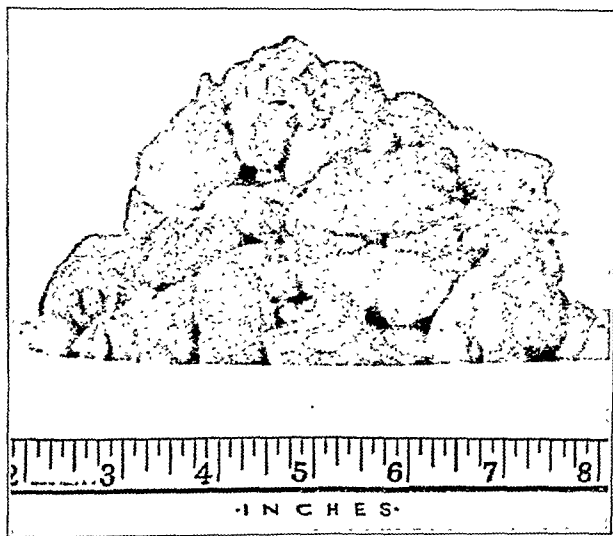
5. Alcock, N. G.: Prostatic Hypertrophy, J. A. M. A. 104:734-738 (March 2) 1935.

6. Emmett, J. L.: Preoperative Intraprostatic Injection of Pituitrin in Transurethral Resection: Preliminary Report. Proc. Staff Meet., Mayo Clin. 11:619-622 (Sept. 23) 1936.

1. Cunningham's Text-Book of Anatomy, ed. 6, New York, Oxford University Press, 1931, pp. 1279-1282.

A marked arcus senilis was present. The pupils were equal and reacted to light. Hearing was moderately impaired. The teeth were artificial. There was no adenopathy. The chest was moderately emphysematous, with reduced expansion and hyperresonant percussion note. There were no râles. The heart was not enlarged. Its rhythm was regular and there were no murmurs. The heart tones were somewhat distant. The blood pressure was 135 mm. of mercury systolic, 85 diastolic. Abdominal inspection and palpation revealed a tense tender tumor attributable to fulness of the bladder. The extremities were normal except for moderate arteriosclerosis. The external genitalia were normal. Rectal palpation disclosed a huge benign prostatic hypertrophy, which bulged so prominently that the examining finger was deflected sharply backward into the hollow of the sacrum. The upper border of the gland seemed far beyond the finger's reach. The consistency and contour were suggestive of benign hyperplasia, with no indication of malignancy. The great size of the tumor did, however, momentarily raise the question of prostatic sarcoma.

After several attempts with various catheters, the patient was relieved of 600 cc. of retained urine by passing a filiform to which was screwed an 18 French Phillips woven catheter.



Fragmented prostate weighing 557 Gm. (largest surgical specimen on record). One pound avoirdupois contains 453.6 Gm. Many of these pieces are as big as the typical large operative specimen. Photograph made four days after operation, when the specimen had shrunken considerably.

The catheter had to be passed until its whole length disappeared into the urethra before urine was drawn. There was slight bleeding.

The following morning suprapubic cystotomy was carried out under local anesthesia supplemented with a small amount of ethylene. The patient's condition was not particularly good, but the great difficulty of catheterization made immediate intervention imperative. When the bladder was opened an enormous mound of prostatic hypertrophy was encountered rising high into the vesical cavity so as practically to fill the bladder. Its consistency was smooth and elastic. The internal urethral orifice was stretched between the immense lateral lobes to form an anteroposterior slit long enough to admit all the fingers of one's hand. The mammoth gland seemed to fill the true pelvis like the head of a fetus at term. There were no palpable stones, vesical neoplasms or diverticula. A Pezzet catheter was inserted into the bladder and a small empty Penrose drain was left in the space of Retzius.

Two weeks later the patient's condition seemed well stabilized. Values for blood urea nitrogen and creatinine had become normal and the phenolsulfonphthalein excretion was 35 per cent, about equally divided between the first and second hours. Enucleation of the prostate was performed March 28, 1936, under spinal anesthesia with 100 mg. of procaine. The prostate was so tightly jammed in the pelvis as to make the ordinary peripheral cleavage plane inaccessible. It was therefore removed by morcellation, which was effected digitally through the many natural cleavage planes afforded by the hyperplastic spheroids. The resulting heap of chunks of tissue (many as large as the

typical operative specimen) appeared sufficient to fill a man's hat. Bleeding was only moderate. A large-size Pilcher bag was placed in the prostatic cavity, but the fit was like that of an egg in a bowl. The remainder of the cavity was filled with two large gauze packs. The incision was closed with interrupted silkworm gut sutures penetrating all layers and several sutures of chromic catgut.

The day after operation, there being no evidence of fresh bleeding, the gauze packs and Pilcher bag were removed. The urethral tube of the bag was utilized to draw a 20 French soft rubber catheter into position, after which the incision was allowed to heal. During convalescence the bladder was irrigated several times daily through the urethral catheter with sterile physiologic solution of sodium chloride. Except for moderate febrile reaction the patient made a smooth recovery, and there was very little spill of urine through the incision after the first two days. Fourteen days after operation the catheter was removed and the patient voided without leakage through the wound. He was discharged from the hospital April 20, 1936.

At the present time the patient is in excellent health and has normal urinary function, with a large free stream and perfect control. Cystoscopic examination three months after operation showed that the huge prostatic cavity had been almost completely effaced, with restoration of the original anatomic relationships at the vesical neck.

The prostatic tissue was examined by Dr. L. L. Daines, dean and professor of pathology at the University of Utah Medical School. His report reads:

"Specimen consists of many masses of prostatic tissue, the largest measuring 7 by 6 by 4 cm. Together, the masses weigh 557 Gm. (almost 1¼ pounds). There are many well defined rounded tumor-like masses and also flat fibrous masses.

"Microscopic sections show a benign, moderately cystic prostatic hyperplasia. There is no evidence of malignancy in these sections."

COMMENT

This is the largest prostate ever removed surgically. The only larger gland described in medical literature was that reported by Douglas,⁷ which weighed 673 Gm. In his case, however, the patient failed to survive a suprapubic cystotomy and the prostate was obtained and studied at autopsy. Freyer⁸ of England in 1908 removed a prostate weighing 529 Gm., which was the largest surgical specimen previous to the present case. His patient survived and obtained a satisfactory functional result. Freyer was accustomed to remove the largest prostates in one piece and, in another case in which the prostate was almost as big, describes graphically his struggle to encompass the entire mass and work his way down to the apex of the prostate. Such immense prostates fill the pelvis so completely that it seems to me much more simple and gentle to utilize the many natural cleavage planes between the hyperplastic spheroids and remove the mass piecemeal, as was done in the case reported. This method has the additional advantage of permitting delivery of the largest prostate through a small incision. It might be compared with Kelly's⁹ suggestion that the uterus be deliberately split in certain difficult hysterectomies.

SUMMARY

A prostate weighing 557 Gm. was removed from a patient, aged 72 (largest surgical specimen on record). This enormous prostate was almost a pound (avoirdupois) heavier than the greatest mass of tissue ever removed transurethrally up to now, even with multiple operations. Deliberate fragmentation of huge prostates is suggested as the easiest, safest method of operation.

Boston Building.

7. Douglas, H. L.: Case Report of Enormous Prostatic Adenoma. *J. Urol.* 18:115-120 (July) 1927.

8. Freyer, P. J.: Clinical Lectures on Enlargement of the Prostate. ed. 5. New York, William Wood & Co., 1920, pp. 90-92 and pp. 85-87.

9. Kelly, H. A.: Gynecology. New York, D. Appleton & Co., 1922, p. 437.

Clinical Notes, Suggestions and New Instruments

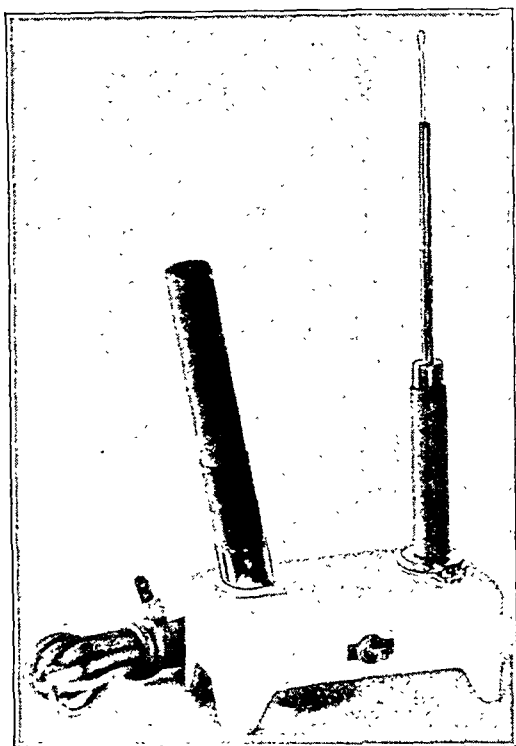
ELECTRICALLY OPERATED BURNER AND BACTERIAL LOOP

SOL ROY ROSENTHAL, M.D., Ph.D., CHICAGO

The instrument¹ shown in the illustration will perform all the duties of a Bunsen burner and bacterial loop. It is adaptable to the private office as well as to the general laboratory.

THE APPARATUS

The apparatus consists of a removable holder and loop and a burner set in a stand. The holder and loop are held in position by two posts, which fit corresponding sockets in the stand. When in place, the chrome wire of the loop as well as the stem of the holder is automatically heated. The burner is composed



Apparatus showing removable holder and loop at right and burner at left.

of chrome wire wound on a lava spool and held at an angle to correspond with the inclination of the mouth of test tubes when passed over these coils.

METHOD OF OPERATION

For heating solutions in a test tube (urine, Benedict's solution, and the like) the latter is simply rolled over the coils. Five cubic centimeters of distilled water will boil in forty seconds. Larger amounts of water can be heated over the burner as with a flame.

For bacteriologic work the holder is withdrawn and the regular bacteriologic technic is followed, except that flaming the mouth of containers is activated by passing them close to (at 1 to 4 mm. about burner temperature is beyond 365 C., the highest register of thermometer used) or actually grazing the coils. The holder is returned to its place and is there automatically reheated.

COMMENT

By actual use in the laboratory, the instrument described has been found to qualify for the normal functions in a clinical and bacteriologic laboratory. Its advantages are:

1. It may be used more widely, since it operates from the ordinary electrical outlet.

2. It heats solutions in test tubes more gradually and thus is ideal for the ordinary urine examinations.

3. It saves time in bacteriologic work, since the loop is always ready for use (estimated at 50 per cent minimum).

4. It is silent.

1853 West Polk Street.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
PAUL NICHOLAS LEECH, Secretary.

ERGONOVINE

Correspondence of the Council on Pharmacy and Chemistry with Sir Henry Dale

At its annual meeting in 1936, the Council proposed the name Ergonovine as a nonproprietary designation for the new ergot alkaloid which had been termed "Ergotocin" by Kharasch, "Ergometrine" by Dudley and Moir, "Ergobasine" by Stoll, and "Ergostetrine" by Thompson. In connection with the discussion of the Council action, Sir Henry Dale of London, England, who was at that time a Corresponding Member of the Council, wrote a letter stating to the Council his opposition to the adoption of the name Ergonovine. Before the letter of Sir Henry was received the Council had adopted the name. Sir Henry was informed of this and the following correspondence between Sir Henry and the Council ensued:

Letter from Sir Henry Dale of Oct. 22, 1936:

"My attention has been so fully occupied with other matters during the past few months, that I have not found time hitherto to give to your letter of June 1st, written with the authority of the Council on Pharmacy and Chemistry, the considered reply which it required. I will ask you to convey my apologies to the Council for this unavoidable delay. From my own point of view it has a certain advantage, in enabling me to feel sure that I write in no hasty mood of resentment, but after long and careful consideration, which has not modified my view of that action by the Council which formed the subject of our correspondence. Let me, very briefly, summarize the relevant points and the principal stages of this correspondence.

"I have for a number of years been a corresponding member of the Council on Pharmacy and Chemistry. I have welcomed the implied confidence in my knowledge of and judgment in such matters as might come within the sphere of the Council's action. I have held myself ready to give to the Council, if requested, any information or opinion which might be helpful to them in the discharge of their duties. They have courteously forwarded to me, for my confidential information, the regular type-written Bulletins of their discussions and decisions. On receiving the Bulletin of February 26th of this year, I observed that notice had been given of the question whether the Council should adopt a nonproprietary name for the new ergot alkaloid. My interest in this matter might be supposed to be known to some members of the Council, and it seemed possible that they might think fit to consult me more directly upon it. To minimize the loss of time in transatlantic correspondence, I wrote spontaneously to the Council on March 16th, as soon as the matter came to my notice through the Bulletin. My association with those who had given the alkaloid the name Ergometrine made it proper that my communication, though it was as fair and judicial as I could make it, should be treated as an *ex parte* statement. I asked the Council to regard it as such, and urged them, before considering the matter, to obtain similar statements from others, who had claimed the right to name what all had admitted to be the same alkaloid. I felt bound, further, to urge, that, after carefully considering the claims of the four names already current,

1. Model by E. H. Sargent & Co. Patent applied for.

the Council should choose one of them for adoption in New and Nonofficial Remedies, and that they should not add to the existing confusion by introducing yet another name of their invention. Later I learned that the action, which I had thus deprecated in advance, had been taken by the Council on March 17th, the day after my letter was written, and long before it could reach them. It was evident that they had taken this step without communication with any of those who had made claims to the first published description of the alkaloid. Such first published description would, I think, be accepted by scientific convention in all countries, as giving the only right to bestowal on such a substance of the name to be adopted for scientific use, provided only that the name is made generally available, and not restricted in use by trade mark. I accordingly held, and still hold, the view that, in simply ignoring all such claims of prior nomenclature, and in assuming to themselves the right to impose on the medical world of America a new name of their own invention, without consultation with any of those who were properly concerned, the Council were guilty of, at least, a serious scientific discourtesy.

"In publishing their decision the Council stated that they had rejected all the names proposed by the claimants to discovery, on the ground that they were either subject to proprietary rights or objectionably suggestive of therapeutic use. Since the particular name in which I was interested, Ergometrine, could not be under any suspicion as regards proprietary protection, it had to be assumed that it was regarded by the Council as violating their rule against therapeutic suggestion. I wrote to the Council on April 20th to express my opinion of their action; and unwisely, I think, argued at some length against the decision that Ergometrine was therapeutically suggestive, and Ergonovine free from this objection. This argument has led the Council to justify their decision in detail, and has probably helped to divert their attention from the really important grounds of my objection to their action. These are two.

"1. They justify their action by the statement that 'there are almost insensible gradations between "Antirheumatic Compound," "Antifebrin" and "Ascorbic Acid."' I suppose that one must accept the Council's evidence as to the limits of their own ability to draw such a distinction; but I am bound to say that it seems clear enough to me. I am glad that the Council mention 'Ascorbic Acid,' since it provides a less complicated example of the policy, which I criticized in the case of the new ergot alkaloid. In both these cases, men of science were seeking to isolate and to identify constituents of natural materials, the existence of which was known only by specific and therapeutically important actions—in the one case, the prevention or cure of scurvy, in the other the action for which ergot had been used for centuries, viz., the stimulation of the human uterus to activity when the drug was given by the mouth. In each case, the essential discovery did not consist merely in the isolation of a hitherto unknown chemical substance, but in its experimental identification as the substance responsible for a specific action; for preventing or curing scurvy, in the one case, and for producing the traditional effect of orally administered ergot on the human uterus, in the other case. It seems to me that names such as Ascorbic Acid and Ergometrine were not only permissible, but even desirable in these circumstances, as a reminder that these substances were not merely of chemical interest, but owed their identification and their scientific interest chiefly to the specific biological activities which these names indicated. Are the Council, then, preparing to use their power of embargo against the name 'Progesterone,' accepted internationally for the pure luteal hormone by the different experts responsible for its isolation? And at what stage are we to expect the rigid application of their principles to the various antisera and vaccines, the accepted names for which flaunt, in plain English, the suggestion of their therapeutic uses, each for a particular disease or type of infection? 'Ascorbic acid' or 'Ergometrine' we are told, must be excluded on the principle which rejects 'Antirheumatic mixture'; while

'Antidysenteric serum,' to quote only one of a very long list, passes without question. If an antitoxin, identified by its specific action, were to be isolated as a chemically pure substance, would its name become improperly suggestive? It does not seem to me that the Council's action is justified by a rigid application of any intelligible principles.

"2. My most serious complaint, however, was not of the lack of consistency in the Council's action, but of their assumption of the right to make and to give effect to decisions, which cut right across the accepted rules of scientific nomenclature, without even consulting those whose proper right and interests would thus be affected. The right of a discoverer of a new substance to name it has a wider authority and recognition than any principles which the Council may lay down for themselves. I suggested, in an earlier letter, that their infringement of this right, without any kind of communication with its possessor, involved a scientific discourtesy. They reply, in effect, that it is the discoverer who is to blame for any injury or annoyance he has sustained, in that he did not obtain their approval, *before exercising his own unquestionable right*. Lest there should be any doubt about this suggestion, I quote the actual words from the letter which you wrote to me on June 1st, with the Council's express authority. 'This interpretation, or misinterpretation, of the Council's motives often could be avoided if the Council were given the opportunity to examine new names for their compliance with its rules, before these names were released to the medical public.' The subject of our correspondence was the Council's action with regard to scientific names, properly given to new substances by their discoverers. The Council suggest, as a protection for the discoverer against their invasion of his rights, that he should approach them like a manufacturer wishing to advertise a nostrum in the United States of America, and wondering how near to the wind of the Council's regulations, well known to him, he will be allowed to sail. The Council have instanced the case of Ascorbic Acid. Do they really feel entitled to assume that Professor Szent-Györgyi, or any other foreign savant, has ever heard of their rules, or even of their existence?

"It seems to me that the Council's attempt thus to extend their authority is quite intolerable, quite apart from the manner in which they exercised it. That part of their proper function which is concerned with nomenclature, deals with the misuse of names in the commercial exploitation of remedies, in the interests of particular businesses. The Council have done work of immense value in curbing the nuisance due to the misleading trick of inventing multiple trade names for a single well-known remedy; they have properly refused their approval to proprietary preparations labeled so as to indicate, not their true nature, but a therapeutic action which the proprietor wishes to suggest. But what concern have such practices with the proper naming of newly isolated pure substances—vitamins, alkaloids, or hormones—in a manner conveniently identifying them with the specific actions which led to their recognition, and which give them their chief interest? It is the attempt to act consistently, in thus applying their policy outside the proper range of their authority, that has led the Council into an attitude of such arrogant assumption, quite foreign, I am sure, to their individual natures.

"In the circumstances, there is only one proper course left to me, namely, with the greatest respect for their aims, to ask the Council to accept my resignation from the position of Corresponding Member, on account of my strong disapproval of their interpretation of their authority. In so doing I should like to thank the Council for the privilege I have had so long, of following their important activities through their confidential Bulletin. I should like to ask one parting favor, and to make one parting recommendation. I should be grateful, and I believe it would help them, by eliciting the comments of others than myself, if they thought it proper to give publicity to this letter through THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION."

Letter to Sir Henry Dale of Jan. 26, 1937:

"Your letter of October 22 in reply to the communication from the Council of June 1 was transmitted in full to the Council for its consideration.

"The Council voted (1) that your communication be submitted to the Editor of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* for his consideration with a view to publication; (2) that the following reply of the Council also be submitted to the Editor with a view to its appearance in *THE JOURNAL* with your letter of October 22. The Council further voted to await your comments on its reply before submitting both communications to the Editor of *THE JOURNAL*.

"The statement authorized by the Council as a reply to your letter of October 22 is as follows:

"Sir Henry Dale's letter concludes his correspondence with the Council regarding the naming of the new ergot alkaloid. It may be recalled that this alkaloid was discovered independently and practically concurrently by four groups of workers, and that each group had proposed a different name for this substance. The Council found that each of these names was in conflict with the published Rules of the Council, and that none of these could be accepted without nullifying the rules under which the Council had worked for these many years, and which it had applied impartially to numerous other cases. The Council therefore used the privilege which it has reserved under its published procedure and coined a name 'Ergonovine,' with the hope that this would prove acceptable to the medical public. Indeed the Council had some hope that the discoverers of the alkaloid would also see the advantages of this name. The Council did not correspond with these discoverers in advance, chiefly because it did not believe that this would do any good, since it had reason to believe that the discoverers were already familiar with these rules when they framed the conflicting names. Sir Henry Dale, who is identified with one of the groups, considers this a serious scientific discourtesy. The Council regrets that Sir Henry views its actions in this light and assures him that no discourtesy was intended. It had not occurred to any one in the Council that they would be so interpreted. Apparently it had not occurred to Sir Henry himself, in analogous cases; for instance, with Viosterol. As corresponding member of the Council, all discussions and decisions of the Council were mailed to him, just as they are to the regular members, as well as the printed Rules and Explanatory Comments in New and Nonofficial Remedies; and the Council would have been glad to receive his views on this as on all subjects. In the absence of any dissent on his part, either as to the Rule or the procedure, up to this time, his present reaction came as a distinct surprise.

"The most serious part of the letter is the assertion that the Council has no moral right to censor names applied by the discoverer. Sir Henry writes: 'The right of a discoverer of a new substance to name it has a wider authority and recognition than any principles which the Council may lay down for themselves' and 'Such first published description would, I think, be accepted by scientific convention in all countries, as giving the only right to bestowal on such a substance of the name to be adopted for scientific use, provided only that the name is made generally available, and not restricted in use by trade mark.' The last clause contradicts what precedes, or rather it indicates that Sir Henry is assuming a universal agreement with his point of view, which does not seem to exist. Such names as 'Adrenalin' and 'Insulin' have been widely accepted by scientists, although they are trademarked; and the pharmacopoeias, as well as the Council, have coined names whenever this appeared to them to be to the public interest. It may be assumed that the discoverer has also given thought to the public interest, but any one who believes that he has erred in this seems to have a moral right to endeavor to correct the error, so far as he may; and for bodies, such as the Council, which are appointed for the purpose of protecting the public interest, this right becomes a duty. The final arbiter is the public itself, especially in the case of the Council, which has considerable moral responsibility, but no power of dictating

to the public. It may indeed happen that the interests of different sections of the public differ in degree or in kind, and in such case it is possible that one name may be employed in preference by chemists, and another by physicians.

"Sir Henry feels that there is something sinister or humiliating in the Council's offer 'to examine new names for their compliance with its rules, before these names were released to the medical public.' The first words of the quotation 'This interpretation or misinterpretation of the Council's motives could often be avoided' shows that the Council had not thought of imposing humiliating conditions on the discoverer but was seeking the discoverer's cooperation in protecting the Council against the imputation of pedantry, and the public against needless polemics. At the same time, the Council feels that it would be ruinous to discriminate in the applications of its rules, and that the manufacturer has a moral right to demand that whatever rules are adopted, they be applied impartially to all the products that come to the Council. The Council doubts seriously whether scientists themselves profit in the end by a different treatment.

"Sir Henry also believes that therapeutically suggestive names are not only permissible but desirable when the substance is 'responsible for a specific action.' One difficulty in such suggestions is that of drawing a line, especially if the action of Ergometrine were considered as 'specific.' Sir Henry asks some pertinent questions about other names, which he considers inconsistent with the Council's interpretation of its rules. To these it may be replied in general that the Council has not felt called on to combat names which had become firmly established before its own Rules were adopted, and that these Rules themselves, and their interpretations, have undergone progressive development. The Council does not propose to change the name of 'morphine,' which has been in use over a hundred years; it has not even proposed to change the name of 'narcotine,' although this has become misleading; it accepted the names 'diuretin' and 'urotropin' because they were in use before the Council was established; it accepted a few other names, which are somewhat suggestive of therapeutic use, at a time when it was thought possible to draw arbitrary lines between 'more and less,' which experience has shown to be impractical; it may have accepted a name or two without recognizing their significance; but all these are not good reasons for framing and accepting new names with therapeutic suggestions.

"The answer to Sir Henry's question as to the acceptance of the name 'Antidysenteric Serum' has been tersely explained in the Rules of the Council for many years: 'The prohibition against therapeutically suggestive names is not applied to serums, vaccines and antitoxins, because the accepted nomenclature of the specific organisms used in their preparation makes this unavoidable and because self medication with them is improbable.'

"The endocrine glands, which elaborate a number of principles, do constitute a difficult problem, because the action is often the only feature by which the specific principles can be identified and differentiated, if several are present. The Council has therefore believed it advisable in the interest of avoiding confusion to accept names which imply these actions; for instance, 'androsterone,' 'estrone,' 'progesterone,' provided they are not framed as therapeutic indications. This exemption cannot be applied to the new ergot alkaloid, for Dr. Dale himself showed long ago that this is not the only ergot principle which acts on the uterus. In conclusion, it may be added that the examples which Sir Henry cites, and the difficulties which they present, are but a few of the large number which the Council endeavors to solve to the best of its ability, not by isolated instances, but with a view to the entire problem.

"The members of the Council regret that Sir Henry does not see some of these problems in the same light, especially since our ideals are fundamentally identical. Although he has ceased to be a member, we trust that he will continue to feel free at all times to discuss with the Council any matters of mutual interest."

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 5, 1937

THE RHYTHM OF HUMAN FERTILITY

Recent evidence indicating that the actual union of sperm and egg in the human species is possible only for a period of less than twenty-four hours in any menstrual cycle has stimulated tremendous interest in the possible practical applications of this apparently biologic fact. The principal corollary, according to Willson¹ in a review of this subject, is that intercourse, in order to be fertile, must take place not more than twenty-four hours preceding the actual occurrence of ovulation. This view is revolutionary and runs counter to the conclusions drawn from the more or less continuous sexual activity of man and the primates as opposed to lower animals. Furthermore, it conflicts with the previous understanding of the biologic analogies of human menstruation. Clearly, according to Willson, the biologic classification of human beings lends credence to the available clinical and laboratory evidence which points to the same midcycle timing of ovulation that exists in other primates.

The observations of Hartman, however, on the rhesus monkey, in which the time of ovulation appears to be independent of the length of the menstrual cycle, would make the unqualified acceptance of some of the practical applications of this theory rather premature at this time. At present, no practicable method or methods exist for exactly timing ovulation. Should such tests be devised, however, as Willson says, "it will require a seer to cast the horoscope of the epoch of social, economic and moral change upon the threshold of which humanity now stands!" It seems certain that the great majority of women are incapable subjectively of even approximating the time of ovulation. Until this can be done by them, or for them by appropriate laboratory tests yet to be devised, this vital date must be estimated by the physician. In the present state of knowledge it seems wise in the attempted determination of the date of ovulation to allow two days before and two days after the theoretical date.

This results in placing its occurrence somewhere in a five day period covering inclusively the twelfth to the sixteenth day before the beginning of the next menstrual period. It is necessary to add two days before the twelfth to cover the term of functional activity of the sperm and one day after the sixteenth to allow for the death of the egg. The period of possible fertility is further lengthened in most women by the fact that the menstrual cycle is likely to vary at least a few days in either direction. Thus, assuming a cycle varying between twenty-six and thirty days (actually few will be found more regular than this) the theoretical date of ovulation using the shortest cycle of twenty-six days may be estimated at the twelfth day after the day the last period began. Four additional days before this must be allowed: two for possible occurrence of early ovulation and two to cover the span of viability of the sperm. This calculation places the first day of the possible fertile period on the eighth day after menstruation. If the patient were regular with a twenty-six day cycle, this day, the eighth, would be the first of a fertile period of eight days, made up of the four days previous to the theoretical day of ovulation, the day of ovulation itself, two days after this to allow for late ovulation, and one additional day to allow for death of the egg. In view of the irregularity of the cycle, however, the difference of four in this instance is now added to the eight days originally figured to make a total of twelve, the number of days of the possible fertile period in this particular patient. Practically then, as Willson points out, the average woman with a maximum irregularity of five days who follows this method of birth control must observe a fertile period of thirteen days which, in addition to the days of menstruation, makes her incapacitated for marital relations for eighteen days in each menstrual cycle. Put in another way, this woman must be continent for about 234 days in each year, as against sixty-five days necessary for the one who is using adequate modern contraceptive measures.

No final conclusions can be drawn from the data thus far available. Willson, however, cites some personal impressions which seem noteworthy. The "safe period" he states, when determined by a competent physician or intelligent layman on reliable menstrual data, is believed to be as reliable as any other known method of contraception. It is, however, unpractical for a considerable proportion of women and unworkable for some and is therefore in no sense a uniformly satisfactory method. Because of the prolonged periods of continence necessary, it tends to destroy spontaneity in marriage to the extent that it forces sexual relations contrary to the normal physiologic tides of desire; in this respect it is antisocial and will tend to destroy rather than to promote marriage. It is obviously unsatisfactory from the standpoint of venereal prophylaxis. Until such time as its limits can be much narrowed and its exact timing more accurately determined,

1. Willson, Prentiss: Present Knowledge on the Rhythm of Human Fertility, M. Ann. District of Columbia 6: 87 (April) 1937.

it can be considered legitimately only as a method accessory and complementary to ordinary methods of contraception. The "safe period" then, used in that way, and also as a guide in the prevention or cure of sterility, is a valuable and practical addition to medical knowledge.

BENZEDRINE SULFATE "PEP PILLS"

Since the advent of ephedrine in modern therapy, a number of similar vasoconstrictors have been proposed primarily for their use in rhinology. Benzedrine, one of this group, has been accepted by the Council on Pharmacy and Chemistry.¹ Benzedrine, as well as its carbonate, differs from other vasoconstrictors which are used for this purpose in being volatile and effective by inhalation.² During the past year a nonvolatile salt of benzedrine—the sulfate—has been introduced and has been extensively exploited as a stimulant for the brain and a producer of sleeplessness. This promotion followed exaggeration in newspaper accounts of the results of experiments made with the drug in psychologic investigations.

The inhalation of benzedrine for its vasoconstrictor action occasionally resulted in sleeplessness after over-dosage. This action led to its use³ and later to the use of the sulfate⁴ orally for the treatment of narcolepsy and postencephalitic parkinsonism. The sulfate has also been used rather extensively in psychopathic institutions for its effect on fatigue and mood⁵ in certain types of mental cases. The latter studies, along with certain attempts to evaluate the mental stimulation resulting from its use in normal persons,⁶ came to the attention of the general public. Subsequently some tablets of the sulfate were used in the department of psychology at the University of Minnesota for the purpose of determining its effect in mental efficiency tests. It was noted that the drug prevented sleepiness and "pepped up" the person who was fatigued. Apparently this information was disseminated to the student body by word of mouth and the drug has been and still is being obtained by the students from drug stores

for the purpose of avoiding sleep and fatigue when preparing for examinations. Previously caffeine and coffee have been used for the purpose of staying awake during examination periods. Benzedrine sulfate, however, has a greater potential danger because it is more effective and produces many side actions which are not likely to follow the use of caffeine.

The eradication of fatigue and the stimulation of mental activity cannot be produced for any appreciable period without subsequent periods of retribution. Whipping a tired horse is an inefficient practice. Cases of collapse, fainting and insomnia have been reported to the student health physicians. Dr. Ruth Boynton⁷ issued a warning in the *Minnesota Daily* against the use of this drug by students, who refer to them as "pep pills" and, according to *Time*,⁸ deans and officials of other colleges are finding it necessary to issue similar warnings. Recently the *Minnesota Daily*,⁹ in commenting on the situation editorially, stated in part:

The growing concern of medical men over increasing use of the stimulant is reflected in an item in the current issue of *Time* magazine. There the drug is termed "poisonous," although most physicians are not willing to go so far in condemnation. All of them, however, are unanimous in condemning indiscriminate and unsupervised use.

Benzedrine differs primarily from other sympathomimetic amines that are used primarily for their vasoconstrictor actions in the extent of its ability to produce certain effects on mood and fatigue. These differences make it especially important that the drug be used only under a physician's direction. There is as little excuse for employing it to avoid fatigue and sleepiness during a temporary period of stress and strain as there is for using morphine to produce sleep after that period is over. The approaching final examinations in universities and schools suggest that physicians in a position to do so issue warnings of the danger of employing the drug in this manner. The druggist too has an opportunity to demonstrate his cooperation with the medical profession by refusing to sell the item except on prescription. Unfortunately, at one of the university cities where the drug has been obtained it has been purchased principally from the drug stores of a large national chain whose owners are apparently more interested in the immediate profit than in the ultimate effects on the purchaser. The manufacturers, on the other hand, appear to be anxious not to have the drug fall into disrepute through misuse, since it has been presented for consideration by the Council on Pharmacy and Chemistry of the American Medical Association.

Benzedrine sulfate thus becomes one more example of a drug which is useful in a limited field of therapeutics but which has been diverted to uncontrolled use by the public for related, but not similar, purposes. If the situation is to be remedied, and it certainly must be as soon as possible, the manufacturer, the druggist, the student health authorities, the college officials and

1. Benzedrine, J. A. M. A. **101**:1315 (Oct. 21) 1933.

2. Bertolet, J. A.: Benzyl Methyl Carbinamine Carbonate, M. J. & Rec. **136**:75 (July 20) 1932. Byrne, H. V.: The Use of Benzyl-Methyl-Carbinamine Carbonate in the Treatment of Rhinitis, New England J. Med. **209**:1048 (Nov. 23) 1933. Wood, E. L.: A New Drug for the Treatment of Eustachian Tube and Middle Ear, Arch. Otolaryng. **21**:588 (May) 1935. Scarano, J. A.: Rapidity of Shrinkage and Immediate and Secondary Reactions following Local Applications of Ephedrine and Benzedrine, M. Rec. **140**:602 (Dec. 5) 1934.

3. Uhlrich, Helmuth; Trapp, C. E., and Vidgoff, Ben: The Treatment of Narcolepsy with Benzedrine Sulfate, Ann. Int. Med. **9**:1213 (March) 1936.

4. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, J. A. M. A. **105**:2051 (Dec. 21) 1935. Solomon, Philip; Mitchell, Roger S., and Prinzmetal, Myron: The Use of Benzedrine Sulfate in Postencephalitic Parkinsonism, J. A. M. A. **108**:1765 (May 22) 1937.

5. Myerson, Abraham: Effect of Benzedrine Sulfate on Mood and Fatigue in Normal and in Neurotic Persons, Arch. Neurol. & Psychiat. **36**:816 (Oct.) 1936. Peoples, S. A., and Guttmann, Erich: Hypertension Produced with Benzedrine: Its Psychological Accompaniments, Lancet **1**:1107 (May 16) 1936. Davidoff, E., and Reifstein, Edward C., Jr.: The Stimulating Action of Benzedrine Sulfate, J. A. M. A. **108**:1770 (May 22) 1937.

6. Nathanson, M. H.: The Central Action of Beta-Aminopropylbenzene (Benzedrine) Sulfate, J. A. M. A. **108**:528 (Feb. 13) 1937. Sargent, William, and Blackburn, J. M.: The Effect of Benzedrine on Intelligence Scores, Lancet **2**:1385 (Dec. 12) 1936.

7. Minnesota Daily, March 12, 1937, p. 3.

8. Time, May 10, 1937, p. 45.

9. Minnesota Daily, May 11, 1937, p. 2.

the physicians must cooperate in preventing the use of this drug by students, who through ignorance may be harming themselves, at least temporarily. It is chiefly the ignorant who try such self medication, not realizing that a drug can never substitute for knowledge or intellect. The drug is too new to pharmacology and experimental medicine to warrant any prediction as to possible permanent harm that may result from its continued misuse.

This drug is one of a group which is contraindicated in certain circulatory conditions, especially hypertension. Some persons have an idiosyncrasy to the drug, which makes its use by them inadvisable. Thus far the reports of difficulties encountered with the drug have arisen from two midwestern campuses. Physicians may well keep this drug in mind when encountering cases of fainting, exhaustion and collapse.

A PROPOSED MEDICAL EXAMINER SYSTEM FOR MICHIGAN

In 1877 Massachusetts abolished the office of coroner and replaced it with the office of medical examiner. The law authorized two full time, salaried medical examiners for Suffolk County, in which Boston is situated, and in each of the other counties as many part time examiners on a fee basis as the county commissioners might deem necessary. In such counties the number varies from one to eleven. The office is appointive, the term of service being seven years. Repeated reappointment of the medical examiners of Boston has resulted in a high type of medicolegal investigation not approached in any coroner jurisdiction. The success of the new system in Boston led to its adoption in New York City in 1918 and in Essex County (Newark), N. J., in 1927. In each of these urban centers the superiority of the medical examiner system has been amply demonstrated.

In sparsely settled rural counties the problem of the antiquated coroner's office is more difficult to solve because of the relatively small amount of work to be done. In Massachusetts outside of Suffolk County the medical examiner system is an improvement over the coroner system but still leaves much to be desired. With modern transportation facilities there is no necessity for from one to eleven medical examiners per county. In rural regions the consolidation of two or more adjoining counties into a medical examiner district under a single examiner might induce competent young physicians to enter the field of medicolegal pathology.

March 29, a bill abolishing the coroner's office and setting up an examiner system was introduced into the legislature of Michigan. The essential features of the title of this bill are:

A bill relative to investigations in certain instances of the causes of death within this state due to violence, negligence or other act or omission of a criminal nature; to provide for the taking of statements from injured persons under certain circum-

stances; to abolish the office of coroner, and to transfer the powers and duties to a state medical examiner and to county medical examiners; to create the office of state medical examiner, and provide for county medical examiners and assistants, and to prescribe their powers and duties . . .

The state medical examiner, who has no counterpart in the coroner system of any state, in addition to qualifications as to residence, profession and licensure shall "possess special training in pathology and the investigation of violent deaths." He "is authorized to incur such . . . expenses and employ such assistants as shall be necessary in carrying out the provisions of this act." A reasonable appropriation for this provision would assure the organization and maintenance of a central medicolegal laboratory or institute, which would serve the entire state through the county medical examiners. This would be the most enlightened step in this field thus far taken in this country and would go far in the development of a system of scientific medicolegal investigation. It is further provided that the state medical examiner shall supervise the county examiners, shall consult and advise with them, and may perform the duties of any county examiner who may be negligent in the performance of his work.

For each county there is to be a county medical examiner appointed for a term of three years by the board of supervisors with the approval of the state medical examiner. The county examiner must be a resident of the county for which he is appointed, or of an adjoining county. The latter provision makes it possible for a single examiner to serve two adjoining counties. This is a step toward desirable functional consolidation. The board of supervisors may also appoint, with the approval of the state medical examiner, such deputy county medical examiners as may be necessary. This would insure the proper performance of the work of populous counties. The state medical examiner may recommend to the county board of supervisors the removal of any county examiner or deputy who may fail to perform his duties properly.

County medical examiners are authorized to make the necessary examinations of the bodies of such persons "as are supposed to have come to their death by violence; without medical attendance up to a time thirty-six hours prior to the hour of death; abortion, whether self induced or otherwise; or in case any prisoner in any county or city jail shall die while so imprisoned." The county examiner is the sole judge of the necessity for postmortem examination in such cases. He may retain, for so long as may be necessary, such parts of the body as may be necessary for the detection of crime. On written order of the prosecuting attorney or attorney general or on petition of six electors of the county, the county medical examiner may investigate the death of any person whose death is believed to have occurred in the county. No dead body may be cremated without the consent of the county medical examiner. The latter official is authorized to take the statement of "any person who has been

injured by the criminal act, omission or negligence of another, and there is reason to believe that death is impending."

One of the worst features of the coroner system is the coroner's jury, as such juries are usually constituted. The Michigan act does not require a jury but makes the calling of a jury optional with the county medical examiner. The latter may issue summons; failure of attendance is subject to penalty. If it appears that death was due to the unlawful act of another, the county medical examiner shall submit his conclusions and those of the jury, if one was called, to the prosecuting attorney. Any and all medical examiners may be required to testify in behalf of the state.

In a measure so enlightened as this, it is a matter of regret to note one seriously undesirable feature. The bill provides that the state medical examiner is to be appointed by the governor for a term of four years. This carries with it the potentiality of making the medical examiner system a part of a state political machine. The terms of governor and state medical examiner should not coincide. If appointment is made by the governor, the term of the state medical examiner should be seven years, as in Massachusetts. It is to be hoped that this feature will be amended and that the measure will become a law. To Michigan would then belong the credit of being the first state to devise a statewide agency for the scientific investigation of deaths of which government must take official cognizance.

Current Comment

COLLAPSE WHILE SWIMMING

The fact that collapse and sudden death while swimming may be due to hypersensitiveness to cold has now been generally recognized. Horton and Roth¹ of the Mayo Clinic now report a further study of this phenomenon, stating that in Minnesota alone approximately 3,000 persons have drowned while swimming since 1920, and that it seems likely that at least some of them were victims of this abnormal reactivity. Physical agents such as cold, they state, probably cause increased permeability of the tissue cells and permit the release of chemical substances. As a result of cold it seems that a histamine-like substance is released and that this, in addition to producing the usual urticarial changes locally, frequently attains sufficient concentration in the general circulation to produce reactions in every way comparable to those obtained when histamine is injected into the body. Nevertheless present chemical methods are not sufficiently sensitive to allow exact quantitative estimation of the histamine-like substance in the blood and therefore corroboration awaits more exact analytic methods. Individual hypersensitiveness can be easily determined by immersion of the hand in ice water at 8 to 10 C. for five minutes. Prior to immersion, obser-

vations on the blood pressure and pulse rate are made and continued at intervals of one minute while the hand is immersed in the water and for a period of twenty minutes after removal from the water. If swelling of the hand occurs after it has been removed, the indication is that the patient is hypersensitive to cold. A systemic reaction is indicated by a drop in blood pressure, an increase in the pulse rate and flushing of the face. The Rochester investigators hold the opinion that all subjects who demonstrate a systemic reaction to this test are likely to develop symptoms of collapse if they swim in cold water. The disorder, however, is readily amenable to treatment. Systemic desensitization can be accomplished either by short immersions of the hand in cold water for one or two minutes twice a day for three or four weeks or by subcutaneous injections of 0.1 mg. or less of histamine twice daily for from two to three weeks.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Institute for Tuberculosis Workers.—An institute for tuberculosis workers will be conducted at the University of Southern California, June 14-26, under the direction of Philip P. Jacobs, Ph.D., director of publications and extension, National Tuberculosis Association. The course will be given in cooperation with the state and local tuberculosis associations. Information may be obtained from the National Tuberculosis Association, 50 West Fiftieth Street, New York.

COLORADO

Dr. Jackson Gives Memorial Lecture.—Dr. Edward Jackson, emeritus professor of ophthalmology, University of Colorado School of Medicine, Denver, delivered the third annual Phi Rho Sigma Memorial Lecture on "Light, and the Branching of Medicine," April 21. The lectureship was inaugurated by Psi chapter of Phi Rho Sigma as a memorial to deceased members of the chapter.

DISTRICT OF COLUMBIA

Short Course on Criminal Investigation.—The Institute of Criminal Science, Washington, D. C., is offering a short course in modern scientific methods of criminal investigation, June 14-July 10, at Georgetown University School of Medicine. The program includes a fifty minute lecture on "Medical Fakes and Their Detection."

GEORGIA

State Medical Election.—Dr. Grady N. Coker, Canton, was chosen president-elect of the Medical Association of Georgia at its annual meeting in Macon, May 14, and Dr. George A. Traylor, Augusta, was inducted into the presidency. Other officers elected are Drs. Charles Hall Farmer, Macon, and Hulett H. Askew, Atlanta, vice presidents. Dr. Edgar D. Shanks, Atlanta, has three more years of a five year term to serve as secretary-treasurer. The next annual meeting will be held in Augusta, May 10-13, 1938.

Society News.—The Fulton County Medical Society was addressed April 15 by Dr. George A. Williams on "The Elliott Treatment as Prophylaxis for Gonorrhea in the Female" and Mr. Earle A. Rowell, "Narcotics as Related to White Slavery, Crime, Prostitution and Medical Practice."—A recent meeting of the Georgia Medical Society was addressed in Savannah by Dr. Joseph W. White, Greenville, S. C., on "Progressive Bone Growth Deformities and Reformities."—Among other speakers, Dr. Frank K. Bolland, Atlanta, discussed surgical treatment of pulmonary tuberculosis before the Spalding County Medical Society in Griffin recently.

1. Horton, B. T., and Roth, Grace M.: Collapse While Swimming: The Most Dangerous Consequence of Hypersensitiveness to Cold, Proc. Staff Meet., Mayo Clin. 12:7 (Jan. 6) 1937.

IDAHO

Society News.—Dr. Floyd H. Jergesen, Nampa, was elected president of the Southwestern Idaho District Medical Society at a meeting in Boise, April 24, succeeding Dr. Orval F. Swindell, Boise, and Dr. Lyman F. West, Boise, was reelected secretary-treasurer. Speakers included Dr. Goodrich C. Schauffler, Portland, Ore.; Dr. Don C. Sutton, Chicago, and John A. Kostalek, Ph.D., dean of the premedical school of the University of Idaho.

ILLINOIS

State Medical Election.—Dr. Samuel E. Munson, Springfield, was chosen president-elect of the Illinois State Medical Society at its annual meeting in Peoria, May 18-20, and Dr. Rollo K. Packard, Chicago, was installed as president. Vice presidents are Drs. Everett C. Kelly, Peoria, and Thomas D. Doan, Palmyra; Drs. A. J. Markley, Garden Prairie, and Harold M. Camp, Monmouth, were reelected treasurer and secretary, respectively. The next annual meeting will be in Springfield, May 17-19, 1938.

Chicago

Personal.—The Willard Gibbs gold medal of the Chicago section of the American Chemical Society was presented, May 21, to Herbert N. McCoy, Ph.D., formerly professor of chemistry at the University of Chicago. Dr. McCoy, who is vice president and research director of the Lindsay Light Company, received his degree of doctor of philosophy at the University of Chicago in 1898. He is known for work on radioactivity.

Beaumont Collection Augmented.—Several personal items have been added to the Dr. William Beaumont collection given to the University of Chicago in 1936. The recent gifts include Dr. Beaumont's watch, his pistol with appurtenances in a mahogany case, a framed photograph of his birthplace in Lebanon, Conn., and his Masonic emblem, inscribed and dated "Plattsburgh, 1815." A Colt pistol, belonging to his son, I. G. Beaumont, was also included. The entire collection, which is the gift of the physiologist's grandson, Ethan Allen Beaumont, and his wife, of De Pere, Wis., will be on permanent display in the library of the Albert Merritt Billings Hospital of the University Clinics.

Alumni Reunions.—The annual dinner of the University of Illinois College of Medicine will be held at the Medinah Club, June 10, with the graduating class as guests of honor of the alumni and faculty. Speakers will include Arthur C. Willard, LL.D., president of the University of Illinois, and A. L. Bowen, Chicago, director of the state department of public welfare. Northwestern University Medical School held its annual reunion June 2-4. A golf tournament at the Illinois Country Club opened the session, with Dr. John F. Delph as chairman. The scientific program included lectures and demonstrations. At the annual dinner Friday evening, at which the graduating students were honor guests, the principal address was delivered by Dr. Irving S. Cutter, dean of the medical school. Dr. Howard B. Carroll, class of 1925, is secretary of the medical division, Alumni Association.

INDIANA

Dinner to Dr. Barnhill.—The Indianapolis Ophthalmological and Otolaryngological Society and the department of otolaryngology of the University of Indiana School of Medicine held a dinner meeting, April 11, in honor of Dr. John F. Barnhill, emeritus professor of surgery of the head at the school. Speakers included William Lowe Bryan, LL.D., Bloomington; Drs. Joseph C. Beck, Chicago; Harry A. Van Osdol, Indianapolis; Fred McK. Ruby, Union City; William F. Hughes, Indianapolis; Eugene G. Boss, Springfield, Mass.; Willis D. Gatch, dean of the medical school, and Mr. John Gaardsmoe, Chicago. Dr. Barnhill retired in 1927 after thirty-eight years' service as a teacher at the University of Indiana School of Medicine and its predecessor but continued his association in an advisory capacity. He was secretary of the Section on the Eye and Ear of the American Medical Association from 1901 to 1903 and chairman in 1904. He was president of the American Laryngological, Rhinological and Otolological Society in 1927.

IOWA

Outbreak of Scarlet Fever.—An outbreak of eighty-eight cases of scarlet fever, later found to be milk borne, was reported in Clarinda recently. In the beginning of the outbreak, several cases were traced to one dairy which supplied less than 10 per cent of the city's milk. Subsequent investigation, when other cases occurred, disclosed that this dairy had purchased milk from a farm which continued to sell milk although under quarantine for scarlet fever.

Fifty Years of Practice.—A dinner was given by the Scott County Medical Society in Davenport, May 4, to honor Dr. Frederick Lambach on his completion of fifty years in the practice of medicine. The guest speaker was Dr. Bert I. Beverly, Chicago, on "Behavior Problems in Children." Aged 71, Dr. Lambach graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1887. He served as coroner of Scott County for eleven years and is past president of the county medical society.

KANSAS

Weekly Cancer Clinic.—The Sedgwick County Medical Society, in cooperation with county officials, began a series of weekly diagnostic clinics on cancer, April 10, at the county hospital in Wichita. Following examination at the clinic, patients are referred to the county hospital for treatment. Dr. David W. Basham is executive officer of the clinic, to which members of the society are donating their time.

State Medical Election.—Dr. Noble E. Melencamp, Dodge City, was chosen president-elect of the Kansas Medical Society at its annual meeting in Topeka, May 4, and Dr. Jacob F. Gsell, Wichita, was inducted into the presidency. Vice presidents are Drs. George W. Davis, Ottawa, and William E. Jones, Eureka; Dr. George M. Gray, Kansas City, is treasurer, and Dr. Harry L. Chambers, Lawrence, was reelected secretary. The next annual session will be held in Wichita, May 2-5, 1938.

MAINE

Women's Field Army Aids Needy Patients.—The Women's Field Army in Maine recently voted to expend the \$13,000 collected in its membership drive in the treatment with x-rays and radium of needy patients. The money will be disbursed through a volunteer state commander with headquarters in Portland. The cost of treatment is to be determined by an advisory board.

MARYLAND

Sir Henry Dale Gives Public Lecture.—Sir Henry Dale, director, National Institute for Medical Research, London, England, delivered a public lecture, May 17, under the auspices of the Thayer Lectureship Fund, Johns Hopkins University School of Medicine, Baltimore, on "Transmission of Excitation by Acetylcholine."

Burial Permits from Adjacent States.—The Maryland Department of Health adopted a regulation, April 22, recognizing burial permits from the District of Columbia and states adjacent to Maryland. Undertakers from these states will no longer be required to obtain a second burial permit when entering Maryland. In the future, cemetery authorities in Maryland will accept, record, endorse and forward such foreign permits to the local registrar in the district of the burial, in the same manner as is prescribed by law for Maryland permits.

MASSACHUSETTS

Henry Jackson Lecture.—Dr. Lewis A. Conner, New York, delivered the annual Henry Jackson Lecture of the New England Heart Association at the Boston Medical Library, April 30; his subject was certain aspects of rheumatic fever and rheumatic heart disease.

Alumni Reunion.—The annual dinner meeting of the alumni of Boston University School of Medicine was held at the Hotel Kenmore, April 29, with Dr. Sanford B. Hooker as toastmaster. The speakers included Dr. Alexander S. Begg, dean of the school of medicine; Dr. Leroy M. S. Miner, dean of the Harvard Dental School and a member of the faculty of the school of medicine; Daniel L. Marsh, Sc.D., president of the university; Dr. Wesley T. Lee, Boston, and Anthony R. Palma, president of the graduating class. Plans for launching a campaign to raise funds for a new building equipped with modern laboratories to replace the 65 year old building on East Concord Street were discussed at the reunion.

Legislature to Study Mental Institutions.—A legislative committee of seven members was organized, April 26, to study the entire field of handling mentally diseased patients in Massachusetts, including administration of all hospitals, schools and allied institutions. Empowered to subpoena witnesses, take testimony and spend \$7,000 in its inquiry, the committee intends to study every one of the nineteen institutions in the department of mental diseases. A report must be ready December 10 for submission to the next legislature. Members of the committee are Judge John Forbes Perkins, Milton, of the Boston Juvenile Court, chairman; Erland H. Fish, Brookline, vice chairman; Judge Joseph W. Monahan, Representative Thomas P. Dillon, Dr. Lloyd Vernon Briggs, Boston, Rev. Otis F. Kelly and John M. Gray.

MICHIGAN

New Regulations for Communicable Diseases.—Botulism, chancroid and psittacosis were added to the list of reportable diseases under the revised rules and regulations for the control of communicable diseases, adopted by the state council of health recently. Streptococcal sore throat was made reportable only in epidemics. New provisions were made for the control of trachoma, which is a reportable disease, and while isolation of patients with trachoma shall be optional with the local health officer, they shall be excluded from public gatherings and not permitted to attend school.

Alumni Reunion.—The Alumni Association of Wayne University College of Medicine will hold its forty-eighth annual graduate clinic and reunion in Detroit, June 16-17. A symposium on biliary tract disease will open the program Wednesday morning at the Medical College Auditorium with Drs. Frank H. Lahey, Boston, Plinn F. Morse, Detroit, and Charles G. Johnston, Detroit, as the speakers. Other speakers will include:

Dr. James E. Davis, Malignant Tumors of the Ovary and Pathology of Puerperal Infection.

Warren O. Nelson, Ph.D., New Haven, Conn., Recent Advances in the Physiology of Reproduction.

Thomas L. Patterson, Ph.D., Demonstrations in Gastric Physiology.

A clinical program will be presented by the staff of Harper Hospital at the hospital Thursday morning, and entertainment in the afternoon will include a visit to the Parke, Davis & Co. laboratories and a boat ride, during which the annual meeting of the alumni association will be held. The annual dinner will be held in the evening at the Detroit Leland Hotel.

MINNESOTA

Reunion of Hospital Interns.—Northwestern Hospital, Minneapolis, is planning a homecoming and reunion Saturday June 19. The program will include a scientific session, luncheon, a boat ride and dinner. All former interns at the hospital are urged to communicate with Drs. Arthur E. Benjamin and William A. H. Hanson in care of the hospital, who are in charge of arrangements, so that they may be sent invitations and additional information. The hospital was established in 1882.

Society News.—At a joint meeting of the Wabasha and Winona county medical societies in Wabasha, recently, the speakers included Drs. Alfred W. Adson, Rochester, on "Problems of the Minnesota State Medical Association"; Edward A. Meyerding, St. Paul, "Our Relation to the Social Security Problem"; Albert E. Meinert, Winona, "The Nervous Patient," and Francis F. Callahan, Pokegama, "Present Trends in the Diagnosis and Treatment of Tuberculosis." Dr. Adson also discussed "Management of Essential Hypertension: Conditions and Indications for Surgical Treatment."—The Minnesota Academy of Ophthalmology and Otolaryngology was addressed, April 9, among others, by Drs. Charles E. Gurney and Henry L. Birge, Rochester, on "Experimental Study of the Fate of Free Fat Transplants" and "Pulsating Exophthalmos" respectively.

MISSOURI

Scholarships at Washington University.—Five new honor scholarships in medicine have been announced at Washington University School of Medicine, St. Louis, each to have a minimum annual stipend of \$300 and not more than \$1,000, varying with the financial state of the student who receives the award. The scholarships have been designated the Jackson Johnson Scholarships in honor of the man whose bequest to the university made them possible. The awards will be renewed for the subsequent years of the medical course, depending on the character of work done each year. The announcement from the school emphasizes that many students of unusual promise interested in medicine are in some instances unable to attend a medical school because of financial limitations and that the loss of such men to the medical profession should be avoided. The new scholarships will be made on a competitive basis to applicants of outstanding ability who possess personal qualities, habits and aptitude likely to form the basis for productive leadership in medical practice.

NEBRASKA

Society News.—Dr. Richard H. Young, Omaha, addressed the Adams County Medical Society, recently, on "The Use of Insulin Shock in the Treatment of Schizophrenia."—Dr. Alfred P. Synhorst, Grand Island, discussed hematuria at a meeting of the Nance County Medical Society in Fullerton recently.—The Omaha-Douglas County Medical Society was

addressed, April 13, by Drs. Charles F. Geschickter, Baltimore, and Francis L. Simonds, Omaha, on "Chronic Cystic Mastitis and Tumors of the Breast" and "Low Back Pain Due to Herniation or Rupture of the Inner Vertebral Disk into the Spinal Canal" respectively. Speakers at the meeting, April 27, included Bruno H. Harms, D.D.S., and Dr. John W. Duncan, who discussed cyclopropane from the standpoint of the anesthetist and surgeon respectively, and Dr. Richard H. Young, "Hypoglycemia Shock Treatment in Dementia Praecox"; Dr. George Alexander Young was the co-author of this paper.

NEW JERSEY

Personal.—Dr. William H. Vail, Newark, 92 years of age, the oldest alumnus of Blair Academy and the only surviving member of the class of 1862, attended his seventy-fifth consecutive reunion, May 8, and made an address of welcome, according to the *New York Times*. He has been a trustee of the academy fifty-one of the eighty-nine years the school has been in existence. Dr. Vail, who is retired, graduated from Columbia University College of Physicians and Surgeons in 1869.—Dr. Harrison S. Martland, Newark, has been reappointed chief county medical examiner of Essex County for a term of five years.

NEW YORK

Fifty Years as Health Officer.—Dr. Henry Charles Young was presented with an engrossed testimonial by Dr. Edward S. Godfrey Jr., Albany, state health commissioner, May 3, "in recognition of fifty years of faithful and continuous service as health officer" of Hagaman, a village in Montgomery County with a population of 867. Dr. Young graduated from Albany Medical College in 1887. He is 76 years of age.

Outbreak of Food Poisoning.—Staphylococci in the cream filling of pastry was responsible for an outbreak of fifty known cases of gastro-enteritis in Rochester and vicinity during the latter part of April, it is reported. All the patients complained of illness about two hours after eating the pastry, the purchase of which was traced to one bakery. An investigation by the city department of health showed all employees of the bakery to be free from skin lesions or other gross evidence of disease, but laboratory analyses of the cream filling revealed that staphylococci were present.

State Medical Election.—Dr. Charles H. Goodrich, Brooklyn, was elected president of the Medical Society of the State of New York at its annual meeting in Rochester, May 25, to succeed Dr. Floyd S. Winslow, Rochester. Drs. William A. Groat, Syracuse, and Arthur S. Driscoll, Staten Island, were chosen vice presidents, and Dr. Peter Irving, New York, was reelected secretary. A resolution was passed by the house of delegates directing the society to assist state authorities in the preparation and administration of motor vehicle laws to reduce the increasing fatalities from automobile accidents. The creation of two new sections on pathology and orthopedic surgery was authorized.

New York City

Conference on Tuberculosis and Public Health.—The annual conference of state and local committees on tuberculosis and public health of New York was held at the Hotel Roosevelt, May 11-13. Speakers included Drs. Wade H. Frost, Baltimore, on "Eradication of Tuberculosis"; Thorvald Madsen, Copenhagen, "Methods of Finding the Sources of Infection in Tuberculosis and Syphilis," and J. Burns Amberson Jr., New York, and Robert E. Plunkett, Albany, whose subjects were not announced.

New Home for Cancer Hospital.—A new home for the Memorial Hospital for the Treatment of Cancer and Allied Diseases will be erected on the block bounded by East Sixty-Seventh and Sixty-Eighth streets, York and First avenues, the *New York Times* reports. The building will cost approximately \$2,800,000 and provide twice as much space as is now available in the Central Park West buildings, for research and treatment. There will be accommodations for about 170 beds, with provision for expanding. It will be some twenty months before the structure is completed. The site was presented by John D. Rockefeller Jr. about a year ago, and the General Education Board provided the funds. Dr. James Ewing is director of the hospital.

Medical Relief in 1936.—The Emergency Relief Bureau, in its annual report, stated that about 900,000 persons representing 285,000 home relief cases received some type of relief during 1936, compared with 1,750,000 persons representing 440,000 cases in 1935. The Medical and Nursing Division of the bureau extended services to 130,167 home relief families;

nursing care was given to 13,955, pharmaceutical prescriptions to 68,434 and surgical or optical appliances to 18,466. The total expenditure for medical and nursing care was \$1,126,000, of which \$783,069 was spent for physicians' services, \$63,210 for nurses, \$200,073 for prescriptions, and \$79,648 for surgical and optical supplies. In 82 per cent of the families there were acute house-confining illnesses that required two or more doctors' visits. The remaining 41,584 families were either referred to hospitals or clinics after the physician's first visit or suffered from chronic illness.

NORTH CAROLINA

Society News.—Drs. Claude B. Squires and Addison G. Brenizer, Charlotte, addressed the Mecklenburg County Medical Society, March 2, on "Mandelic Acid Therapy in Urinary Infections" and "Harelip and Cleft Palate" respectively. Dr. Paul H. Ringer, Asheville, was the guest speaker at a meeting of the Eighth District Medical Society, April 8; he spoke on "Differential Diagnosis of Pulmonary Disease."

OHIO

Fifty Years of Service.—Dr. Lyman A. Brewer, chief of staff of the Mercy Hospital, Toledo, since it was founded in 1918, was guest of honor at a banquet, May 8, in recognition of his completion of fifty years in the practice of medicine and presented with an automobile, a plaque and a medal. Dr. Louis R. Effler was toastmaster at the dinner. Dr. Brewer graduated from the University of Michigan Medical School in 1887 and began practice in Toledo in 1889. He was formerly dean and professor of surgery at Toledo Medical College and assisted with the organization of Mercy Hospital in 1918. The Toledo Academy of Medicine recently made Dr. Brewer an emeritus member.

One Day Institute on Syphilis.—A one day institute on syphilis was held at the Cincinnati General Hospital, May 13. The program opened with a clinical demonstration and presentation of patients with acute syphilis. The guest speakers included Drs. Clyde L. Cummer, Cleveland, and William A. Hinton, Boston, who addressed a special meeting of the Academy of Medicine of Cincinnati in the evening on "The Role of the Private Practitioner in the Early Recognition and Treatment of Acute Syphilis and the Relations to the Local, State and National Health Organizations" and "How the State of Massachusetts Functions in the Control of Syphilis" respectively. Both speakers led a round table discussion in the afternoon and Dr. Cummer addressed a meeting at the University of Cincinnati College of Medicine.

New Professors at Ohio State.—Dr. Emmerich von Haam, assistant professor of pathology, Louisiana State University Medical Center, New Orleans, has been appointed professor and chairman of the department at Ohio State University College of Medicine, Columbus, effective July 1, and Dr. Jesse Fremont Bateman, superintendent of the Columbus State Hospital, has been appointed professor of clinical psychiatry. Dr. Carl L. Spohr has been acting chairman of the department of pathology since the death of Dr. Ernest Scott in 1934. Dr. von Haam graduated in 1926 from the Faculty of Medicine of the University of Vienna. Following a year's graduate work, he was awarded a fellowship of the Rockefeller Foundation, later receiving an appointment at the University of Arkansas as associate professor of pathology. He has been at Louisiana State University for six years. Dr. Bateman, who is 39 years of age, graduated from the University of Cincinnati College of Medicine in 1928.

PENNSYLVANIA

Dr. Gross in New Position at Polyclinic.—Dr. Herbert F. Gross has been elected to the newly created position of medical director of the Harrisburg Polyclinic Hospital. The position was created at a recent meeting of the board of directors of the hospital, at which the charter was amended and new by-laws governing the institution were adopted, it is reported. Dr. Gross is a charter member of the hospital board and staff and has served as chief surgeon since the organization of the latter.

Philadelphia

Personal.—A bronze plaque was unveiled at the Frederick Douglass Memorial Hospital, April 30, in honor of Dr. Lawrence F. Flick for his work on tuberculosis. Dr. Berton C. Truitt, chief of the medical staff, presided, and Dr. John P. Turner, head of the department of surgery, unveiled the tablet. Speakers included Judge Harry S. McDevitt, chairman of the board of directors; William C. Hunsicker, director

of public works; Ralph Senter, member of the board of directors, and Dr. Thomas S. Burwell, head of the tuberculosis department.

Anniversary of College of Physicians.—The one hundred and fiftieth anniversary of the College of Physicians of Philadelphia was observed, May 14-15. The first day Mr. Roland S. Morris, president, American Philosophical Society, spoke on "The College and Its Present Opportunities," and Dr. David Riesman, emeritus professor of clinical medicine and professor of the history of medicine, University of Pennsylvania School of Medicine, "The College, Its Library and Other Treasures." After these addresses, the building, with its reading and seminar rooms, stacks, incunabula and special collections, Mutter Museum, and special exhibits illustrating the early days of the college, was inspected. In the evening thirty-two delegates from foreign and American institutions of learning were welcomed by the president, Dr. George P. Müller. Speakers included:

Sir Henry H. Dale, director, National Institute for Medical Research, Hampstead, England, Medicine as an Experimental Science.

Dr. Hans Zinsser, professor of bacteriology and immunology, Harvard University Medical School, Boston, The Transformation of Medicine by Public Health Development.

At the fellows' banquet, Saturday, Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine and director of the Institute of History of Medicine, Johns Hopkins University School of Medicine, Baltimore, discussed "The Beginnings of Scientific Societies"; Dr. Francis R. Packard, "Last Fifty Years of the College," and Dr. Müller, "The Future of the College." The College of Physicians of Philadelphia was established in 1787 and as part of its objective to advance the science of medicine awards annually the Alvarenga prize.

Pittsburgh

Society News.—At a meeting of the Allegheny County Medical Society, Pittsburgh, May 18, the speakers included Dr. Sidney M. McCurdy, Columbus, Ohio, on "The Advantages of a Medical Bureau of Economics."—Dr. Leon Herman, Philadelphia, discussed "Renal Tumors" before the Pittsburgh Medical Society at its annual meeting, May 10.

Mellon Lecture.—Edward A. Doisy, Ph.D., professor of biochemistry and director of the department, St. Louis University School of Medicine, St. Louis, gave the twentieth Mellon Lecture under the auspices of the Society for Biological Research of the University of Pittsburgh School of Medicine at the new building of the Mellon Institute for Industrial Research, May 13. Dr. Doisy's subject was "The Ovarian Follicular Hormone."

UTAH

New Department of Social Welfare.—A department of social welfare has been created at the University of Utah, Salt Lake City, to provide professional training in social case work, it is announced. Present plans call for a two year course, which may be taken by senior students. Arthur L. Beeley, Ph.D., since 1927 professor of sociology and director of the Bureau of Student Counsel at the university, has been placed in charge.

WASHINGTON

The Annual Health Conference.—The Presidents' Forum, an organization of the presidents of various women's clubs in Seattle, held its annual health conference April 26-27 under the sponsorship of the King County Medical Society. Heretofore the conference has been sponsored by the state department of health. Mrs. Walter Raymond Jones, president-elect of the woman's auxiliary of the county medical society, directed the program. Various members of the society spoke on timely subjects, and round table discussions were directed by Drs. Clarence Luverne Smith, representing pediatricians; Raymond L. Zech, the Seattle Health Council, and Donald G. Evans, state health officer.

Society News.—The King County Medical Society was addressed in Seattle, May 17, by Drs. Kenneth K. Sherwood, Kirkwood, and David Metheny, Seattle, on "Chronicity of Rheumatic Fever" and "Instrumental Perforation of the Recto-sigmoid" respectively. At a meeting, April 19, Drs. Arnold W. Hackfield and Louis H. Edmunds, both of Seattle, spoke on "Significance and Interpretation of Low Basal Metabolism Without Myxedema" and "Common Injuries to the Soft Structures About the Knees" respectively.—Dr. Karl A. Menteninger, Topeka, Kan., addressed the Pierce County Medical Society, Tacoma, recently, on "Neuropsychosis in Hypertension."—Drs. Glenn N. Rotton and Harold Frederick Thorson, Jackson, Seattle, addressed the Skagit County Medical Society, Oak Harbor, recently, on "Management of Breech" and "Simu-

sitis" respectively.—Drs. John F. Beatty and Herbert W. E. Johnson addressed the Snohomish County Medical Society, Everett, recently, on "Postoperative Lung Complications" and "Transurethral Resection" respectively.—Dr. Robert F. E. Stier, Spokane, addressed the Walla Walla Valley Medical Society, Walla Walla, recently, on "Desensitization by Oral Administration of Pollen Extracts."

WEST VIRGINIA

Refresher Courses.—The division of maternal and child hygiene of the state health department and the West Virginia Medical Association have planned a series of refresher courses in obstetrics and pediatrics during July and August. They will be held in the following towns: Charleston, Parkersburg, Huntington, Logan, Williamson, Bluefield, Welch, Beckley, Lewisburg, Elkins, Romney, Wheeling, Clarksburg, Fairmont and Morgantown. Lecturers announced in the *West Virginia Medical Journal* are Drs. James R. McCord, Atlanta; Everett D. Plass, Iowa City, and Lee Palmer, Louisville, Ky.

PHILIPPINE ISLANDS

Study of Leprosy.—A special committee on leprosy was recently formed in Manila to carry out a research project in Welfareville with children of leper parents as subjects. The study will cover research on leprosy immunization and the determination of the presence of the lepra bacillus in persons through the reaction of the bacilli to protein serum and vaccines. It will be supervised by Dr. Earl B. McKinley, dean and professor of bacteriology, George Washington University School of Medicine, Washington, D. C., and members of the newly appointed committee: Drs. Sulpicio A. Chiyuto, Manila; Cristobal Manalang, Manila; Felix Velasco, Manila; Jose N. Rodriguez, Mandaue; Casimiro B. Lara, Culion, and Herbert Windsor Wade, Culion.

CANADA

Vancouver Summer School.—The annual summer school sponsored by the Vancouver Medical Association will be held June 22-25 at the Hotel Vancouver, Vancouver. The speakers will be Drs. Leonard G. Rowntree, Philadelphia; William Boyd, Winnipeg; Paul B. Magnuson, Chicago; Harold Brunn, San Francisco, and Donald V. Trueblood, Seattle. Among the subjects to be discussed are endocrine diseases, chronic arthritis and hypertension by Dr. Rowntree, tumors of the mouth, neck and uterus by Dr. Trueblood, fractures of the femur, the forearm and the elbow by Dr. Magnuson, lung abscess, empyema, cancer of the colon and hemorrhage by Dr. Brunn, and bronchogenic carcinoma, nephritis and tumors by Dr. Boyd. Drs. Boyd, Trueblood and Bede J. M. Harrison will present a symposium on carcinoma of the breast.

Society News.—Dr. Milton H. Erickson, Eloise, Mich., addressed the Ontario Neuropsychiatric Association recently at London on "The Applications of Hypnosis to Psychiatry."—The program of the Academy of Medicine of Toronto, April 6, was arranged by the Hamilton Academy of Medicine with the following speakers: Drs. William J. L. Deadman, "Wilms' Tumors"; Otto W. Niemeier, "Some Indications for Gallbladder Surgery and the Importance of Earlier Operation," and William R. Jaffrey, "Dermatologic Neurosis." Dr. Thomas Anwyl Davies, director of the venereal disease department and lecturer at St. Thomas's Hospital, London, England, discussed "The Control of Venereal Disease in Great Britain—Statistical, Administrative and Therapeutic," before the academy, May 3.

Public Health Meeting.—The Canadian Public Health Association and the Ontario Health Officers Association will hold their annual sessions in Ottawa, June 17-19, at the Chateau Laurier. The tentative program announces the following speakers:

- Dr. Clarence E. Hill, Toronto, president, Ontario Health Officers Association, Certain Problems of Health Administration Common to All Health Officers.
- Dr. Frederick W. Jackson, Winnipeg, Manitoba, Poliomyelitis.
- E. W. McHenry, Ph.D., Toronto, Causes of Malnutrition.
- Dr. Ronald Hare, London, Puerperal Fever.
- N. L. Burnette, Ottawa, Accident Control.
- Dr. Albert Grant Fleming, Montreal, Mental Hygiene.
- Dr. Douglas V. Currey, St. Catharines, Ont., Health Administration.
- Dr. Robert E. Wodehouse, Ottawa, Ont., The Federal Department of Health.
- Dr. Malcolm R. Bow, Edmonton, Alta, president, Canadian Public Health Association (subject not announced).

At the annual dinner Friday evening, the speakers will be C. G. Power, minister of pensions and national health and honorary president of the Canadian Public Health Association, and Dr. Frank G. Boudreau, formerly of Geneva, Switzerland, director of the Milbank Fund.

GENERAL

Reunion of A. E. F. Physicians Proposed.—It has been proposed that physicians who served overseas during the World War with Evacuation Hospital No. 14 have a reunion during the annual convention of the American Legion in New York in the fall. Those who are interested are requested to communicate with Charles Meloy, Room 3050, Grand Central Terminal, New York, or Ernest O. Bianco, Elmsford, N. Y.

Executive Secretary for Academy of Pediatrics.—Dr. Thomas B. Cooley, professor of pediatrics, Wayne University School of Medicine, Detroit, has been appointed executive secretary to the council for pediatric research of the American Academy of Pediatrics. The council, which was established in 1935, includes Drs. Cooley, Kenneth D. Blackfan, chairman, and Fritz B. Talbot, of Boston; Dr. Alexis F. Hartmann, St. Louis; Dr. Irvine McQuarrie, Minneapolis, and Dr. Oscar M. Schloss, New York. Dr. Cooley is 65 years of age and a graduate of the University of Michigan School of Medicine, class of 1895. He was formerly president of the American Academy of Pediatrics.

Misrepresentation of Burial Vaults.—The Federal Trade Commission recently ordered the Cast Stone Company, Columbus, Ohio, to stop advertising that its burial vaults will harden with age and finally become adamant or of impenetrable hardness. The company agreed to stop asserting that its vaults will endure for centuries or for all time, free from the inroads of water or rodents. It will also cease implying that the material of which its vaults are made is the only material which, regardless of burial conditions, is strong and dependable enough to exclude water indefinitely, when such is not a fact. The commission's stipulation points out that vaults made of concrete are in many cases subject to the effect of and are appreciably affected by corrosion caused by the presence in the soil of alkali and other soluble chemicals.

American Association for the Study of Goiter.—The annual meeting of the American Association for the Study of Goiter will be held in Detroit, June 14-16, at the Book-Cadillac. The tentative program lists the following speakers:

- Dr. Joseph L. DeCoursey, Cincinnati, "The Goiter Problem and Abnormality: Its Relation to the Iodine Problem."
- Dr. Saul Hertz, Boston, Prognosis of the Goiter Problem.
- Dr. George W. Crile, Cleveland, Comparative Anatomy and Physiology of the Thyroid Gland.
- Drs. Walter M. Boothby and William A. Plummer, Rochester, Minn., Interpretation of Basal Metabolic Rates in the Relatively Normal Individual.
- Drs. Howard M. Clute and Fuller Albright, Boston, Management of Minor Complaints After Thyroidectomy.
- Dr. Charles W. Mayo, Rochester, Minn., Malignancy of the Thyroid: Further Observations.

"Radio Pratique" Supplants Quarantine.—Beginning February 1, the U. S. Public Health Service placed into effect the system of clearing certain passenger vessels by "radio pratique" instead of by the customary quarantine inspection. According to *Public Health Reports*, seventy-six vessels entering New York used the system 127 times in forty-six days during the period February 1-March 26. The 127 entries totaled 1,513,104 net tons and carried 42,438 passengers and 48,973 crew members. While the report covers a period of fifty-four days, there were eight days on which no eligible vessels entered the port. The seventy-six vessels, of 822,308 net tons, belonged to eighteen steamship companies under nine flags: British, American, German, French, Italian, Swedish, Dutch, Polish and Norwegian. "Radio pratique" was inaugurated to facilitate the landing of steamship passengers in the port of New York and is considered the most radical alteration of the country's sanitary defenses against the importation of foreign disease and pestilence since the first quarantine station was established in New York Harbor in 1758 (THE JOURNAL, February 6, page 484).

Certification Without Examination by Board of Internal Medicine.—Until July 1, the American Board of Internal Medicine will receive applications for certification without examination from the following groups:

- Professors and associate professors of medicine of approved schools of medicine of the United States and Canada.
- Physicians who have practiced the specialty of internal medicine for ten years and are fellows in good standing in one or more of the following special societies of internal medicine: (1) American College of Physicians, (2) Royal College of Physicians of Canada, (3) Association of American Physicians, (4) American Clinical and Climatological Association, (5) American Gastro-Enterological Association, (6) American Society for Clinical Investigation, (7) Central Society for Clinical Research.
- Physicians, members of the American Medical Association, who have practiced the specialty of internal medicine for fifteen years, and are recommended by the Executive Committee of the Section on the Practice of Medicine of the American Medical Association.

Requests for application forms should be received before July 1, at the Office of the Chairman, Dr. Walter L. Bierring, 1210, 406 Sixth Avenue, Des Moines, Iowa.

Cancer Foundation in Honor of Drs. Howell and Finney.—A foundation for the study of cancer will be created under the will of the late Dr. George Walker, head of the outpatient department of the Johns Hopkins Hospital, Baltimore, who died from cancer March 31. It will be known as the Finney-Howell Research Foundation, in honor of Dr. John M. T. Finney, emeritus professor of surgery at Johns Hopkins University Medical School, and Dr. William H. Howell, emeritus professor of physiology at the School of Hygiene and Public Health. The primary object of the foundation is to provide a series of fellowships for the study of cancer, each with an annual stipend of \$2,000, although special grants may be made to support the work done by the fellows. With no laboratory or institute of its own, the foundation will expend all the money in supporting the work of the fellows. The will places \$300,000 at the disposal of the foundation, to be expended within ten years. The fellowships will be annual appointments but may be renewed for a period of three years and may be awarded to workers in institutions in any part of the world. Members of the board of scientific directors include Drs. Finney and Howell; Philip Bard, Ph.D., Drs. Curtis F. Burnam, William A. Fisher, Wade Hampton Frost and Warren H. Lewis of Baltimore; Evarts G. Graham, St. Louis; Ernest L. Kennaway, London; Jonathan C. Meakins, Montreal, and Florence R. Sabin, New York. The financial directors of the foundation are Jesse N. Bowen, Frederick G. Boyce Jr. and Lee E. Daly, all of Baltimore.

Various Sentences for the Eyesight Swindlers.—The arrest of persons involved in the eyeswindling racket was reported in *THE JOURNAL*, Dec. 19, 1936, page 2059. The arrests were brought about by the U. S. Post Office Department. According to a recent report, Edward Robinson, alias Eddie A. Robinson, pleaded guilty in Shelby, N. C., March 15, to an indictment charging him with using the mails to defraud. He was sentenced to two years in jail on each of two counts, but the second was suspended for five years pending his good behavior. In Alexandria, Va., in the U. S. district court, Roy L. Martin, Curtis Yeager and Jack Holtkamp pleaded guilty to similar charges. Martin was sentenced to nine years and six months; Yeager's sentence of six years will begin on the completion of a sentence of five years which he is now serving in the Virginia State Penitentiary at Richmond, and Holtkamp's sentence of five years will commence at the expiration of a sentence of one year and one day, which he is now serving in the U. S. Penitentiary at Leavenworth, Kan. Frank Mackett Jr., an attorney in Milwaukee who deposited checks sent him by the swindlers for collection, remitting the proceeds less 10 per cent commission, was sentenced to seven years and to pay a fine of \$25,000. William E. Hanecy received a concurrent sentence of three years on one count and two years on another count, Lewis Levy was fined \$500 and Jerry Theeman was sentenced to four years. Other arrests, not included in the earlier list in *THE JOURNAL*, include James Henry Howard, alias Jimmy Head; William and Susie Sachs, who have been indicted in the western district of North Carolina; Raymond B. Hall, arrested at Nashville, Tenn., and removed to Norfolk, Va., for trial, and Ernest Mandell, arrested March 6 to stand trial in Milwaukee.

FOREIGN

Medal for X-Ray Research.—A David Anderson-Berry gold medal and a money prize amounting to about £100 will be awarded in July 1938 by the Royal Society of Edinburgh to the person who in the opinion of the council has produced the best recent work on the nature of x-rays in their therapeutic effect on diseases in human beings. Applications for this prize are invited. Both published and unpublished work may be submitted. Applications must be in the hands of the general secretary of the Royal Society of Edinburgh, 22 George Street, Edinburgh 2, by June 1, 1938.

Congress on Child Psychiatry.—The first International Congress on Child Psychiatry will be held in Paris July 24 to August 1, at the Maison de la chimie, 28 rue Saint-Dominique. Subjects to be discussed are neurophysiologic bases for child psychiatry, educational methods, and mental debility as a cause of infantile and juvenile delinquency. Among American physicians to take part in the discussions are Drs. Arnold L. Gesell, New Haven, Conn.; Lauretta Bender, New York; Frederick L. Patry, Albany, and Frederick Peterson, New York; Arthur H. Ruggles, Providence, R. I., and William Healy, Boston. The secretary-general is Dr. Leon Michaux, 74 Boulevard Raspail, Paris.

Foreign Meetings.—An International Congress on the Short Wave in Physics, Biology and Medicine will be held in Vienna, July 12-17. The address of the secretariat is Alser-

strasse 4, Vienna IX.—The twenty-first annual conference of the National Association for the Prevention of Tuberculosis of Great Britain will be held in Bristol, July 1-3. Information may be obtained from the Acting Secretary General, Tavistock House North, Tavistock Square, London, W. C. 1.—On the program of the International Congress on Hepatic Insufficiency to be held in Vichy, France, September 16-18, the following physicians of the United States are listed as participants: Drs. Lathan A. Crandall Jr., Chicago; Andrew C. Ivy, Chicago; Norman W. Elton, Reading, Pa., and Hyman I. Goldstein, Camden, N. J. This congress will be preceded by the second International Congress of Gastro-Enterology, in Paris, September 13-15. Those wishing to attend these congresses may receive information from Dr. Anthony Bassler, 121 East Seventy-First Street, New York.—The twenty-sixth annual meeting of the Oxford Ophthalmological Congress will be held at Keble College, Oxford, July 8-10. Among the speakers will be Dr. Bernard Samuels, New York, on "The Histopathology of Papilledema."

Deaths in Other Countries

Joseph Halban, professor of gynecology, University of Vienna, died April 23, aged 76.—Sir George W. Badgerow, London, vice president of the British Medical Association, died suddenly, May 9, in London, aged 65.—Samuel Alexander Kinnier Wilson, Croonian Lecturer, Royal College of Physicians, London, 1925; Morison Lecturer, Royal College of Physicians, Edinburgh, 1930; president, Section of Psychiatry, Royal Society of Medicine, London, 1930-1931; honorary member, neurological societies of Italy, Poland, Paris, Vienna, Philadelphia, Society of German Neurologists and Medical Society of Copenhagen and of the American Neurological Association; president, Royal Medical Society, Edinburgh, 1902-1903, died, May 12, following an operation.

Government Services

The Wellcome Prize

The Sir Henry S. Wellcome Medal and Prize of \$500 will be awarded this year for the best paper on "The Contributions of the World War to the Advancement of Medicine." Competition is open to medical department officers and former officers, acting assistant and contract surgeons of the army, navy, public health service, organized militia, U. S. Veterans' Administration, U. S. Volunteers and the reserves of the United States, commissioned medical officers of foreign military services, and all members of the association. Further information on the competition, which closes August 15, may be obtained from the secretary of the Association of Military Surgeons of the United States, Army Medical Museum, Washington, D. C.

Scientific Research Division Reorganized

Under the recent reorganization of the Scientific Research Division of the U. S. Public Health Service, effective February 1, three new divisions were established at the National Institute of Health: the division of biologic control under the direction of Sr. Surg. Walter T. Harrison; the division of public health methods, which incorporates the work of the former field office of public health methods with the work of the offices of child hygiene, milk investigations, statistical investigations and the laboratory of stream pollution investigations, under the direction of Surg. Joseph W. Mountin, and the division of industrial hygiene, which coordinates the work of the former office of industrial hygiene and the extensive laboratory studies of occupational dermatoses carried on at the National Institute of Health, under the supervision of Sr. Surg. Royd R. Sayers. The former division of bacteriology and pathology was further reorganized so that part of the division relating to bacteriology is known as the division of infectious diseases. Under the direction of Sr. Surg. Rolla E. Dyer, this division covers the field and laboratory work relating to infectious diseases, including leprosy studies, malaria investigations, the Rocky Mountain Laboratory, tuberculosis and epidemiologic studies. The division of pathology now includes the field office of cancer investigations. The former divisions of chemistry, pharmacology and zoology of the institute remain under the direction of Claude S. Hudson, Ph.D., Carl Voegtlin, Ph.D., and Maurice C. Hall, D.V.M., respectively. According to the *Health Officer*, the National Institute of Health has become, in fact, the Scientific Research Division. Asst. Surg. Gen. Lewis R. Thompson, in charge of scientific research, is now director of the institute.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 8, 1937.

Changes in the Forms of Illness

Lord Horder recently said that the expectation of life had risen by fifteen years in the past two generations and that the increase in cancer might be no more than a confirmation of that fact. Influenza was still the great plague. The decrease in tuberculosis during the past thirty years was perhaps the greatest achievement in the control of infectious diseases in this generation. Fifty years ago the large industrial cities were full of rickets. Today the disease was fast dying out. Gout had greatly declined in its most classic phases, such as acute inflammation of the big toe, but the same processes may be expressed in the circulatory apparatus. There was a considerable increase in the prevalence of diabetes. Neurasthenia was now one of the major problems of medicine, as regards both its causes and its treatment.

The Pasteurization of Milk

In the House of Lords the government announced its intention of bringing forward legislation dealing with the milk policy generally. Lord Dawson, president of the Royal College of Physicians, said that the numerous epidemics of recent years caused by infected milk made the problem urgent. He agreed that if pure milk from healthy herds could be obtained and pasteurization made unnecessary it would be ideal, but that the financial and technical difficulties were immense. He saw no other way of dealing with this vital question than a properly controlled and organized system of pasteurizing milk. The mortality from tuberculosis had declined, but there had not been the improvement in the bovine type of infection encountered with regard to the human type. What was the good, Lord Dawson asked, of spending large sums on health services while leaving this bad sore open?

Mental Disorder Following Head Injury

Before the section of psychiatry of the Royal Society of Medicine, Dr. C. P. Symonds communicated a minute study which he had made of mental disorder following head injury, based on sixteen cases in which the acute symptoms lasted from three weeks to fourteen months. These were all "closed cases." He excluded cases of compound fracture, in which the clinical picture might be complicated by laceration of the cortex or by infection. Even closed injuries might be accompanied by clinical evidence of coarse focal lesions; for instance, hemiplegia or dysphasia. These too he excluded, his object being to present what appears to be the direct effect of injury on the cerebral function as a whole.

The principal mental disorder after head injury was loss of consciousness in some degree. The qualification was necessary because confusion was apt to arise in practice as to what loss of consciousness meant. It might be argued that a man who could answer questions, such as giving his name and address, after an accident, was conscious. But if next day he had no recollection of having done so, or of the time when the accident occurred, he might be said with equal reason not to have been fully conscious. The duration of unconsciousness might be measured by that of the traumatic amnesia.

Take the common case of minor injury—so-called concussion. At the moment of the accident the clinical picture was dominated by the physical state of complete flaccid paralysis. The mental state was profound stupor, from which recovery was always gradual, through a stage of dazed bewilderment and, after this, automatism, before full consciousness returned. The initial deep stupor might be momentary, while the process of recovery was spread over a longer period. This was particu-

larly true for the phase of automatism, as in the injured football player who played to the end of the game, with subsequent amnesia. Occasionally the loss of consciousness after injury might be delayed.

After severe injuries, recovery to full consciousness might be spread over days, weeks or even months. Between these two extremes every gradation might be observed. In one case the mental disorder might be dismissed as "after-effects of concussion"; another might be dignified by the title of "acute traumatic psychosis," but Dr. Symonds believed that there was no essential difference. He considered traumatic psychosis as one disease, recognizing the predominance at one time or other of certain features—in the early stages, stupor; later, confusion; after confusion had faded into the background, amnesia for recent events, with a tendency toward confabulation.

The state of deep stupor rarely lasted more than a day or two, but it might extend to many weeks. As the patient emerged from the stupor he usually was excited, sometimes was dazed, and reacted irritably to interference. He was wet and dirty and had to be fed. Often there was delirium. This state might continue for days, weeks or even months, and there might be an occasional relapse into stupor for two or three days. Gradually conversation became possible and then were found a profound disorientation in space and time and inability to synthesize perceptual data. Memory and judgment were grossly impaired. Thought was impeded by perseveration. Disturbance of speech was conspicuous. The mood was elated and the talk resembled that of hypomania. There was a far reaching retrograde amnesia.

THE PRECIPITATION OF SPECIAL MENTAL DISORDER

Head injury might precipitate specific mental disorder—schizophrenia, paranoia or manic-depressive psychosis. This was shown in two ways. One of the symptoms of post-traumatic dementia was an exaggeration of preexisting traits. Secondly, the injury created an invalidism to which the patient reacted in terms of his mental make-up. Manic-depressive symptoms might appear before the patient recovered from the acute traumatic psychosis.

TRAUMATIC NEURASTHENIA

Why was traumatic neurasthenia more common after head injuries than after injuries of other parts? The answer was that the patients fell into three groups: 1. The accident led to the development of psychogenic states no more frequently after head than after other injuries. 2. There is a group of patients suffering from post-traumatic dementia who are apt to react with anxiety and irritability to tasks beyond their capacity. 3. A group of patients had constitutions before the accident of the depressive or anxious type. The injury precipitates an illness which, once begun, runs its own course—usually toward recovery. These patients are suffering from neurasthenia, which is traumatic in a physical rather than in a psychogenic sense.

The Overtreatment of Gonorrhea

In communications to the *Lancet*, three genito-urinary surgeons, who have had considerable experience in venereal disease clinics, maintain that gonorrhea is much overtreated. Mr. M. F. Nicholls states that acute urethritis subsides as rapidly as acute nasal catarrh with rest in bed. Custom, however, makes gonorrhea an ambulatory disease. When rest cannot be given it is illogical, he believes, to irritate the inflamed mucosa by active measures. Antiseptics cannot destroy gonococci in the urethra without damaging the mucous membrane. Yet posterior irrigation is frequently employed from the onset which unless done efficiently is dangerous. Mr. Nicholls has found it frequently responsible for spreading the infection to the posterior urethra and causing epididymo-orchitis. During the acute stage of posterior urethritis, bladder irrigation fortunately is too painful to be possible. In the chronic stages, when the posterior

urethra is already infected, filling and emptying the bladder from without with an antiseptic is better tolerated, but Mr. Nicholls thinks that it is less efficient and less safe than the passage of large quantities of urine.

Much misdirected energy, he says, is devoted to massaging the anterior urethra and prostate. This treatment seems to be carried out too early, too often and sometimes too violently. But when active inflammation has subsided and collections of mucus are present, occasional massage is probably beneficial. Employed too frequently, it produces a traumatic irritation.

The Effects on Health of the Combustion of Illuminating Gas

The Royal College of Physicians appointed a committee including Dr. W. W. Jameson, professor of public health, London University, and Sir Joseph Barcroft, F.R.S., physiologist, to investigate the effects of the combustion of gas in dwellings and particularly in flueless rooms. The report, which has just been published, shows that with properly working apparatus there is no danger to health whatever. Even in a room with a minimum air change and under conditions of gross vitiation and overheating, such as would result from a continuous gas rate of 1 cubic foot per hour for 50 cubic feet of room capacity, the maximum carbon dioxide concentration will be only about 1 per cent. A sedentary person may breathe air containing 0.02 per cent of carbon monoxide for six hours and develop only mild symptoms, such as slight headache, and there are no lasting deleterious effects. In industrial work, prolonged exposure to 0.01 per cent is permissible and does not produce harm. The committee concluded that 0.005 per cent in living rooms would be innocuous and 0.01 per cent safe. In appliances of good design, combustion is practically complete. With a maximum concentration of 1 per cent of carbon dioxide in a room the carbon monoxide would be only 0.002 and with unsatisfactory apparatus 0.01. But the normal concentration of carbon dioxide is much less than 1 per cent and the carbon monoxide correspondingly less, rarely exceeding 0.0005 per cent. There is no evidence that even the higher concentrations mentioned are injurious to health. The evidence is unconvincing as to the occurrence of any definite group of symptoms that would indicate a chronic form of carbon monoxide poisoning. This view is supported by the fact that this gas is not stored in the tissues and is therefore not a cumulative poison.

PARIS

(From Our Regular Correspondent)

May 8, 1937.

Application of Forty Hour Week to Private Hospitals

A law was passed in June 1936 according to which a salaried employee is obliged to work only forty hours a week. The application of this law to commercial organizations has taken place at a far more rapid rate than was generally thought, resulting in innumerable protests on the part of employers. March 22 a decree, as it is termed here, was issued by the president of the republic, in accordance with a motion of the minister of labor and approved by the cabinet, extending the new law to all public and private institutions engaged in the care of the sick or mentally incapacitated. The French Private Hospital Association is sending to the government the following resolution of protest against the application of the forty hour week to private institutions:

Such an application will create serious difficulties in the necessary surveillance of patients in private hospitals, and sanatoriums and will greatly increase their already existing heavy expenditures for nursing and other personnel. The present high cost of foodstuffs has already necessitated large additional expenditures, because the majority of the personnel receive their meals at these institutions.

Even before this application of the forty hour a week law, the outlay for salaries and maintenance of the personnel had already constituted 35 per cent of the total expenditures. Private patients refuse to accept an increase of more than 20 per cent in the charges for hospital care.

The allowance for care of injured veterans has not been changed since 1922, in spite of two devaluations of the French franc; the allowance for care of those injured in industrial pursuits remains the same as in 1928; finally, the allowances granted to hospitals and other institutions which receive patients covered by social insurance have not been changed in spite of the increase in premiums which all the socially insured must now pay but whose indemnities for sickness or injury are now higher than before. The closing of private hospitals and sanatoriums would throw a great many people out of work; furthermore, such institutions, in case of war, must be considered a part of the national defense. These institutions have decided therefore, in a spirit of loyalty, to attempt to apply the forty hour a week law. However, taking into consideration that employment in a hospital cannot be compared to work in a factory or office, the hospital association feels that, since hospital service is continuous, i. e., a twenty-four hour one, the hospitals have the right, in view of article 38 of the labor code, to insist on daily cessation of work of their employees, in rotation.

In consequence of a recent statement of the minister of labor, in the case of institutions in which service is continuous the working week is regarded as composed of six days, so that each employee is entitled to one day's rest every week.

Tomography in the Diagnosis of Pulmonary Lesions

The new radiographic technic of tomography will be of great aid to those interested in the diagnosis of pulmonary disorders, according to Dr. Etienne Bernard of Paris, who presented a paper at the April 7 meeting of the Académie de chirurgie. It is particularly in pulmonary tuberculosis that tomography will yield important information. For example, to detect a cavity overlooked by the usual methods of diagnosis, to be able to measure its size accurately, to locate it and to evaluate the results of an operation will be possible when this new technic is employed.

Tomography, from the Greek word "section," is needed for the following reasons: Ordinary radiography enables one to interpret the sum of all the images situated in the cone of irradiation of the luminous source. In the case of the thorax, the diameters of which are relatively large, the superposed planes form a sum of images whose analysis is often difficult and the interpretation subject to error. In addition, the shadows of the ribs obscure the normal pulmonary opacity. As a result, in certain regions the lesions can be partially or completely masked. This is particularly true wherever the ribs cross one another or the clavicle and also in the anterior and posterior costomediastinal zones. In addition, a deep seated lesion is invisible when an opacity of greater density lies in front of or behind such a lesion. Finally, a lesion is to be detected only by a difference in the degree of transparency; under ordinary conditions and in certain cases, such a difference can be insufficient, especially if the lesion is small and of slight density. The new technic renders it possible to obtain chest films in the frontal or transverse planes, free from the ordinarily superposed bone shadows. Those who have employed tomography consider it superior to stereoscopy or profile radiography. The principles of tomography are the following: As the result of the studies of Bocage (1922), Vallebona (1930), de Ziedes des Plantes (1932) and the practical adaptations of Grossmann and Chaoul (1935), the present equipment can be briefly described as consisting of an x-ray tube which, instead of being fixed, has a curvilinear movement which is coordinated with a synchronous change in position, but in the opposite direction, of the film holder. The remainder of the

technic and the interpretation of the tomographs can be read in the original of Bernard's paper (*Mémoires de l'Académie de chirurgie*; No. 11 of volume 63, meeting of April 7, 1937).

The method has been employed extensively during the past few years in Germany by Chaoul and Grossmann and by Reissner and Schmidt, in Italy by Vallebbona and in England by McDougall of Maidstone. Bernard showed a number of slides illustrating the technic and its application to the diagnosis of pulmonary lesions. The technic still needs to be improved. The supine position is required at present, which is a disadvantage in radiography of the chest.

International Congress of Industrial Medicine

The International Congress of Industrial Medicine will be held at Paris during the week beginning June 1. Prof. Victor Balthazard, head of the Medicolegal Institute here, will preside. The program includes visits to factories, excursions, entertainments at the exposition and a banquet. Among the papers, those of special interest are on the subjects of instruction in industrial medicine, treatment of workers with cardiac disease or pulmonary tuberculosis, benzene poisoning, and the modern conception of industrial medicine. Those who wish to take part in the congress are asked to write to Dr. G. Hausser, Medicolegal Institute, Paris.

VIENNA

(From Our Regular Correspondent)

April 21, 1937.

Danger of Air Embolism in Thyroidectomy

The Vienna Physicians' Society recently had as a visiting lecturer Dr. Donald Guthrie of Sayre, Pa. He described the mechanism of the air embolisms that may occur in the course of a surgical intervention, especially if the thyroid is involved. Arterial embolism is more dangerous than a venous embolism, since it may lead to embolism in the brain or in the coronary arteries. In the first rank of blood vessels, predisposed to venous embolism, are those veins which are strongly intergrown with the deep cervical fascias. Fatal air embolism in man was first described in 1818, although in medieval times animals were put to death by intravenous insufflation of air. Fatalities from air embolism depend on mechanical and biologic factors; the blood becomes frothy and is forced back into the veins by the systole, a small amount of blood reaching the lungs and the left ventricle. The anemia that ensues in the region of the fourth ventricle (a vital center) causes cessation of respiration. Death occurs only if the amount of entering air exceeds a certain magnitude; the patient may be saved by timely artificial respiration. Small quantities of air cause dyspnea and a fall in blood pressure. Exophthalmic goiter patients are in greater peril if an air embolus appears than patients with other forms of thyroid disease. Diagnosis is easily established by the typical sounds that accompany entrance of air into the vascular system: a hissing sound and a "mill-wheel sound"; the latter is audible at a distance of 1 or 2 meters. Gas bubbles are often observed on the retinal blood vessels. The speaker has observed four embolic accidents, one fatal, which occurred during thyroidectomies. The best treatment is a speedy prophylactic ligature of the exposed vein; one should take care not to apply too great a number of Kocher's forceps. In operation for recurrent goiter the cicatrices are a great source of annoyance. In case of collapse the immediate indication is artificial respiration by means of oxygen and carbon dioxide, since the impairment of respiration precedes the cardiac dysfunction. Intracardial injection of a 2 per thousand solution of epinephrine can also be tried.

In the general discussion of Dr. Guthrie's paper, Professor Denk said that among 378 thyroidectomies observed by him during the past four years there had been three cases of embo-

lism, two mild and one fatal. Professor Ranzi reported similar experiences. He said that in most instances air embolism runs a favorable course. Should an embolic accident occur the patient should immediately be shifted and the field of operation covered with cloths or gauze and common salt solution. Professor Finsterer usually performs a thyroidectomy with the patient in Trendelenburg's position. He considers this the best prophylactic measure that can be taken against embolism. The drawing off of the intruding air by means of a glass tube or of a ureteral catheter advanced from the cubital vein toward the heart is recommended by many. Professor Werkgartner has gone over the necropsies for all the years since 1919 at the Institute of Legal Medicine. Since that year fifty cases of fatal embolism have been reported. Included in this number are embolic accidents connected with induced abortions and puncture wounds. In fatal cases Professor Werkgartner observed from 70 to 120 cc. of air in the right side of the heart. At necropsy it is often most difficult to determine the exact point at which the air entered. It is usually apparent that the frothy blood has been forced by the systole into the pulmonary artery and the larger veins and that relaxation of the heart has caused it to recede, so that blood no longer reaches the periphery of the lungs.

The Electrical Energies of the Organism

At the last session of the Vienna Society of Biology, Professor Dr. Keller of Prague read a highly instructive report of the micro-electrical studies of the liver and connective tissue, to which he has for many years given his attention. Keller has elicited a body of facts which constitute a notable contribution to an understanding of hepatic and connective tissue functions in their relation to metabolism. The basic fact repeatedly stressed by the investigator is this: The interrelation of the cells and the blood is governed by an electrostatic difference in potential; namely, there exists an electrical field in which the blood (serum) acts as a negative pole, and the cells of the liver or of the tissues as a positive pole. Since all nutritive substances possess a certain electrical charge, namely, are capable of being attracted or repelled by the poles according to the law of electrical attraction and repulsion, there must be a certain amount of differentiation among the nutritive substances. On the basis of this selection some substances will infiltrate the cells and others will remain in the blood. If, as is now the case, one is able to prove the validity of these theoretical assumptions by actual observations of metabolic function, it signifies a remarkable correspondence between theory and practice. The Vienna school has already evinced particular interest in this problem, as shown by practical discussions based on the work of Kaunitz, Siedek and Schober at the Eppinger clinic. Professor Keller now demonstrates these facts, using for the first time as an example the healthy liver, and shows what changes appear if the liver is diseased and the electrical tension thus diminished. Infiltration of the liver cells by water and common salt takes place and this renders the organ incapable of performing its normal tasks.

Prof. Dr. Salomon Klein and Prof. Jakob Erdheim Are Dead

The Nestor of the Vienna Faculty of Medicine, Prof. Dr. Salomon Klein-Bäringer, recently died at the age of 92 at Budapest, in which city he had resided for a short time previously. Professor Klein was a pupil of the ophthalmologist Jäger, a teacher of the classic period of the Viennese medical school. Klein's investigations of the interrelation of nerves and blood vessels of the eye, of the condition of the retina in tabes, of dementia paralytica and neuritis optica, and of cataract were of fundamental importance for the development of ophthalmology. He was a brilliant operator and teacher. He attracted to his classes a great number of foreign physicians, to whom he lectured in five different languages. Since he had been

inactive at the polyclinic for the last twenty years, the younger generation of ophthalmologists knew of him only through his past contributions.

Vienna University has suffered a great loss in the sudden death of Prof. Jakob Erdheim, who succumbed to an attack of angina pectoris at the age of 63. A pupil and assistant of Professor Dr. Weichselbaum, Erdheim was rated as one of the world's foremost pathologic anatomists. His investigations of the hypophysis and of the parathyroids have come to be of the greatest significance for present-day hormonology. Erdheim was regarded as an authority in the field of histopathology of the skeleton. In the last months of his life he dedicated himself to anatomic studies of the blood vessels. A preeminent teacher who possessed the gift of smooth and precise diction, he was an asset of the first rank to Vienna University. His lectures were perhaps the most visited in all Vienna. His pupils occupy professorial chairs the world over, in America and Asia as well as in Europe. As an international authority, he was the recipient of many high honors despite his personal modesty.

BERLIN

(From Our Regular Correspondent)

May 5, 1937.

The Treatment of Vascular Lesions

Dr. Karitzky, assistant to Professor Rehn, ordinarius in surgery at Freiburg, outlined before the Freiburg Medical Society the principles advanced by Rehn on the treatment of vascular lesions. Lesions of the medium-sized and smaller arteries wherein a corresponding collateral circulation can be substituted for the normal circulation should be treated by acupression and ligation. Hematoma masses that are capable of producing a necrosis of the limb by pressure on the uninjured arteries under the rigid fascias of the lower leg ought to be removed by simultaneous wide severing of the fascias. In minor lesions of the larger, and for the nutrition more important, blood vessels, the restoration of the necessary circulation is accomplished by lateral or annular vascular sutures. The suturing, if effected within the first twenty-four hours, remains intact despite the suppuration that will appear later in the infected region of a wound. The suture brings about improved perfusion in this region and thus exercises a favorable influence on the healing of the wound. In traumatic lesions of larger arteries, the wound is covered with a free venous transplant. Plastic lesion-grafts are contraindicated only if the region of the wound is infected. In wounds from shooting, especially those inflicted by shell fragments, the suppuration of a wound leads to destruction or thrombosis of the transplant. In extensive gunshot wounds there usually is present, however, so severe a degree of destruction that even vascular plastic surgery cannot save the extremity. If, to repair a major lesion by primary suture, it is necessary to subject the lumen of the vessel to considerable traction, a later necrosis of the extremity frequently ensues despite the intact suture and permeability of the arterial lumen. Clinical observations demonstrate that for proper treatment of vascular lesions a knowledge of the physiology of the vascular system is requisite. If the technic is skilful, the results will be gratifying.

It was further observed that there is an adjustment of the venous transplant to the altered velocity within an artery. If the walls of a venous transplant are too weak, the saphenous vein dilates, elongates and serpentine itself even if it is implanted in the length corresponding to the arterial defect. This can be demonstrated by x-ray visualization. The phenomenon is explicable to be sure in terms of arterial pressure. Gradually, however, the venous wall adapts itself functionally to the arterial pressure, as histologic follow-up examinations have shown. The wall thickens (but only through the connective tissue) and becomes stronger, until finally it is commensurate with the pressure and equilibrium is then restored.

The Fight Against Cancer

Early recognition is the main problem of the anticancer campaign. Recently efforts have been made to institute annual examination of the largest possible number of women over 30 years of age for the purpose of detecting any cancerous alterations of the genitalia or of the breasts. Professor Esch, director of the women's clinic of Münster University, has just made public in the *Münchener medizinische Wochenschrift* data bearing on the anticancer campaign in Westphalia. In the year 1931 the number of cancer patients (1,024) admitted to the larger hospitals of the province was 21 per cent greater than the corresponding number (881) in 1930. In 1931 there were 386 admissions of uterine cancer cases against 296 in 1930, an increase of 32.6 per cent. The corresponding figures for breast cancer were 111 admissions in 1931 against 103 in 1930, an increase of 7.7 per cent. These increases were due to the fact that a larger number of cases in which operation could not be performed came to hospitalization. The number of admissions in 1932 was 9.1 per cent greater than that of 1931. The distribution of newly admitted cases during the three years 1930 to 1932 according to operability is given in the accompanying table. The increase in the number of operable cases in 1932 may thus be considered a noteworthy advance. In more than 10 per cent of the inoperable cases of uterine cancer, complete cure was accomplished by radiotherapy; and even in the incurable cases, important partial successes were achieved.

Esch attributes this favorable trend to better education of the public with respect to cancer. The number of persons who consulted a physician immediately after or within a month after the observation of suggestive symptoms increased by 13.4 per cent; namely, from 19.8 to 33.2 per cent of the total num-

Operability of Cancer in Newly Admitted Cases

Year	Uterine Cancer Cases		Breast Cancer Cases	
	Percentage Operable	Absolute Number of Cases	Percentage Operable	Absolute Number of Cases
1930	21.9	274	58.33	96
1931	16.53	386	56.57	111
1932	35.5	555	74.9	338

ber of patients. This increase followed the inauguration of a public propaganda campaign against cancer. Nevertheless, two thirds of the patients had been slow to consult a physician. On the basis of the foregoing data, early medical diagnosis is still lacking in a majority of cases. It was noted in particular that vaginal examination, always a necessary procedure, was frequently omitted, hemorrhages were erroneously interpreted, and the possibility of carcinoma was not given sufficient consideration in cases of younger women presenting metrorrhagia, especially if the patients appeared to be in a good state of nutrition. The illness of many women (11.6 per cent of all the patients) was often first correctly diagnosed at a late date in the clinic because of personal or domestic conditions. Some women needlessly delayed the beginning of proper attention by symptomatic treatments, which usually took the form of cauterization.

Marriages

WILLIAM DAVID MACKAY, Mount Vernon, N. Y., to Mrs. Margaret Estee Somers of Bronxville, in Miami, Fla., February 26.

MAURICE L. TOWNSEND to Miss Nell Hamlin, both of Washington, D. C., in Raleigh, N. C., February 18.

STANTON CLIFFORD LOVRE, Watertown, S. D., to Miss Frances Anderson of Lincoln, Neb., March 25.

WILLIAM BENDER MILLER to Miss Helen Jane Stambaugh, both of Harrisburg, Pa., April 17.

MERLIN TREADWELL RYMAN, Chatham, N. J., to Miss Ruth Sparks of Brooklyn, May 8.

Deaths

Way Sung New ☉ Shanghai, China; Harvard University Medical School, Boston, 1914; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; secretary of the Council of Medical Missions, and past president of the Chinese Medical Association; chairman of the administrative board of the National Anti-Tuberculosis Association of China in 1934; in charge of the department of anatomy at the Harvard Medical School of China, 1915-1916; he was an orthopedic assistant in the outpatient department of the Carney Hospital, Children's Hospital, and the Massachusetts General Hospital, Boston, 1916 and 1917; formerly was in charge of orthopedic surgery at Peiping Union Medical College; professor of orthopedic surgery, Medical Department of St. John's University; associate professor of orthopedic surgery, Woman's Christian Medical College; visiting orthopedic surgeon at the Margaret Williamson Hospital, Shanghai, and consulting orthopedic surgeon at the Soochow Hospital, Soochow; honorary superintendent of the Chinese Infectious Diseases Hospital; superintendent and chief surgeon of the Orthopedic Hospital of Shanghai, which he founded in 1928; aged 44; died, May 4.

Charles Breckenfeld Jones ☉ Sacramento, Calif.; University of California Medical Department, San Francisco, 1906; fellow of the American College of Surgeons; on the staffs of the Mercy and Sutter hospitals; surgeon to the Western Pacific Railroad Company; local surgeon to the Pacific Telephone and Telegraph Company; consulting surgeon to the Sacramento Northern Railway; aged 57; died, March 14.

George Standish Dickinson, Erie, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania and the American Gastro-Enterological Association; past president of the Erie County Medical Society; president, and for many years a member of the board of health; formerly on the staff of the Hamot Hospital; aged 66; died, March 10, of coronary thrombosis.

Charles McClure Doland ☉ Spokane, Wash.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; member of the North Pacific Surgical Association; past president of the Spokane County Medical Society; fellow of the American College of Surgeons; veteran of the Spanish-American War; on the staff of the Sacred Heart Hospital; aged 59; died, March 13.

Archibald Magill Fauntleroy ☉ Medical Director, Captain, U. S. Navy, retired, Ossining, N. Y.; University of Virginia Department of Medicine, Charlottesville, 1901; entered the navy in 1901 and retired in 1921; served during the World War; fellow of the American College of Surgeons; aged 60; died, April 13, at the Harkness Pavilion of the Presbyterian Medical Center, New York.

Charles Freeman Halsted, Somerville, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; University of the City of New York Medical Department, 1890; member of the Medical Society of New Jersey; member of the staff of the Somerset Hospital; aged 68; died, March 8, of pulmonary embolism and arteriosclerosis.

Millard Langfeld, Omaha; Johns Hopkins University School of Medicine, Baltimore, 1898; at one time assistant professor of medicine at the Creighton University School of Medicine; formerly city health director; author of a book entitled "Infectious and Parasitic Diseases"; aged 64; died, March 22, of essential hypertension, chronic nephritis and uremia.

Albert Harrison Hill ☉ Mifflinburg, Pa.; Medico-Chirurgical College of Philadelphia, 1901; member of the local board of health and medical inspector for the schools of Mifflinburg; aged 59; died, March 28, in the Geisinger Memorial Hospital, Danville, of perforated duodenal ulcer and subdiaphragmatic abscess.

Thomas F. Higgins, Elizabeth, N. J.; College of Physicians and Surgeons, Baltimore, 1908; member of the Medical Society of New Jersey; for many years city physician; on the staffs of the Elizabeth General Hospital, St. Elizabeth's Hospital and the Alexian Brothers' Hospital; aged 57; died, March 24, of pneumonia.

Wilder De Wolfe Hubbard, Florence, Ala.; College of Physicians and Surgeons of Chicago, 1895; member of the Medical Association of the State of Alabama; formerly secretary of the Lauderdale County Medical Society; for many years county health officer; aged 65; died, March 25, of angina pectoris.

Robin William Cummins Francis, Westerville, Ohio; Medical College of Ohio, Cincinnati, 1898; member of the Ohio State Medical Association; formerly demonstrator of anatomy at his alma mater; served during the World War; aged 66; died, March 14, in a hospital at Washington, D. C.

Hiram Clayton Finch ☉ Pulaski, Iowa; Medical College of Indiana, Indianapolis, 1881; Chicago Medical College, 1890; an Affiliate Fellow of the American Medical Association; past president of the Davis County Medical Society; aged 82; died, March 7, in Bloomfield, of cerebral hemorrhage.

Arthur Frederick Jackle, New York; University of Buffalo School of Medicine, 1907; member of the Medical Society of the State of New York and the American Academy of Ophthalmology and Oto-Laryngology; aged 55; died, March 6, in Pasadena, Calif., of pneumonia.

Stephen Masury Gordon, Fall River, Mass.; Harvard University Medical School, Boston, 1885; member of the Massachusetts Medical Society; formerly on the staffs of the Fall River Union Hospital and the Fall River City Hospital; aged 78; died, March 20.

Waldo Milton Gaines, Sidney, Ohio; Central College of Physicians and Surgeons, Indianapolis, 1905; member of the Ohio State Medical Association; president of the medical staff of the Wilson Memorial Hospital; aged 64; died, March 16, of cerebral hemorrhage.

Robert Franklin Foster, Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1903; member of the Michigan State Medical Society; aged 66; member of the staff of the Highland Park (Mich.) Hospital, where he died in March.

Auguste Guertin, Nashua, N. H.; School of Medicine and Surgery of Montreal, 1892; member of the New Hampshire Medical Society; member of the staff of the Memorial Hospital and formerly on the staff of St. Joseph's Hospital; aged 70; died, March 7.

Ashley Darling James, Choctaw, Ala.; Medical Department of the University of Alabama, Mobile, 1901; member of the Medical Association of the State of Alabama; secretary of the Choctaw County Medical Society; aged 60; died, March 25.

Howard Conner Dunham ☉ Sulphur, Okla.; Tulane University of Louisiana School of Medicine, New Orleans, 1930; on the staffs of the Murray County Hospital and Clinic and the Soldiers Tubercular Sanatorium; aged 35; was found dead, March 15.

William Preston Hoy, Petersburg, Va.; University College of Medicine, Richmond, 1899; member of the Medical Society of Virginia; on the staff of the Petersburg Hospital; aged 61; died, March 23, in the Lankenau Hospital, Philadelphia.

John S. Hasty, Lamar, Colo.; Drake University College of Medicine, Des Moines, Iowa, 1887; St. Louis College of Physicians and Surgeons, 1891; formerly member of the state board of health; aged 76; died, March 19, in a hospital at Denver.

George Beggs Crews ☉ Denver; Chicago Medical College, 1883; at one time a medical missionary in China; formerly professor of pharmacology at the Denver and Gross College of Medicine; aged 80; died, March 11, of arteriosclerosis.

John R. Graves, Zebulon, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897; member of the Medical Association of Georgia; aged 66; died, March 30, in Chapel Hill, N. C., of cerebral hemorrhage and chronic nephritis.

Frederick Prentiss Glazier, Hudson, Mass.; Boston University School of Medicine, 1883; formerly member of the state legislature, the school committee and board of health; aged 77; died, March 23, in the Hahnemann Hospital, Worcester.

John W. Hawkey, Bloomingdale, Mich.; Medical College of Fort Wayne, Ind.; 1882; member of the Michigan State Medical Society; aged 78; died, March 16, in the City Hospital, South Haven, of carcinoma of the stomach.

William Robert Alway, Waterford, Ont., Canada; M.B., University of Toronto Faculty of Medicine, 1897; M.D., Trinity Medical College, Toronto, 1897; formerly medical health officer; aged 65; died, March 25.

Irving Lloyd Carpenter, Manchester, N. H.; Harvard University Medical School, Boston, 1890; member of the New Hampshire Medical Society; at one time city and county physician; aged 70; died, March 15.

Frederick Jerome Doherty, Medical Lake, Wash.; Trinity Medical College, Toronto, Ont., Canada, 1903; member of the staff of the State Custodial School; aged 58; died March 18, of heart disease.

David Kapp ☉ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1906; aged 51; on the staff of the Jewish Hospital, where he died, March 19, of carcinoma of the prostate.

Charles McIntosh Burroughs, Sudbury, Ont., Canada; University of Toronto Faculty of Medicine, 1911; member of the Associated Anesthetists of the United States and Canada; aged 51; died, March 14.

John Logan Fleek, Brodhead, Wis.; Rush Medical College, Chicago, 1895; past president of the Green County Medical Society; aged 75; died, March 21, of chronic myocarditis and pulmonary tuberculosis.

Millard Francis Cupp, Clarksburg, Ind.; Medical College of Ohio, Cincinnati, 1882; member of the Indiana State Medical Association; aged 78; died, March 22, of endocarditis and arteriosclerosis.

Marvin Ward Dupree, Athens, Ala.; Medical College of Alabama, Mobile, 1903; member of the Medical Association of the State of Alabama; aged 57; died, March 13, of carcinoma of the stomach.

John O. Gaston, Rochester, Mich.; Detroit College of Medicine, 1904; at one time health officer of Accomac County, Va.; aged 58; died, March 27, of chronic myocarditis and nephritis.

Andrew Howard Fuller ☉ West Upton, Mass.; Baltimore Medical College, 1906; aged 69; died, March 13, in the Memorial Hospital, Worcester, of injuries received in an automobile accident.

Robert Lee Glascock, San Antonio, Texas; University of Louisville (Ky.) Medical Department, 1902; served during the World War; aged 68; died, March 23, of cerebral hemorrhage.

Maxwell Vidaver, New York; Bellevue Hospital Medical College, New York, 1898; aged 60; died, March 5, in the Mount Sinai Hospital, of perforated peptic ulcer and peritonitis.

Charles Edward Mackey, Boston; Tufts College Medical School, Boston, 1919; member and formerly chairman of the city school committee; aged 43; was shot and killed, March 25.

William Norman Cowles ☉ Cataumet, Mass.; Harvard University Medical School, Boston, 1887; aged 74; died suddenly, March 28, of coronary occlusion and arteriosclerosis.

Ottocar E. Kopetschny, Jersey City, N. J.; University of the City of New York Medical Department, 1886; aged 75; died, March 23, of Hodgkin's disease and arteriosclerosis.

John W. Harper, Hampton, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897; member of the Medical Association of Georgia; aged 62; died, March 22.

George Leonard Baber, Winnsboro, Texas; Atlanta College of Physicians and Surgeons, 1906; member of the State Medical Association of Texas; aged 55; died, March 3.

E. Curtis Gevedon, Grassy Creek, Ky.; Kentucky School of Medicine, Louisville, 1894; formerly member of the board of education; aged 66; died, March 14, of pneumonia.

Theophile Albert Combre, Lake Charles, La.; Meharry Medical College, Nashville, Tenn., 1917; aged 46; died in March at Kerrville, Texas, of pulmonary tuberculosis.

Israel Isaac Bernstein, New York; Baltimore Medical College, 1906; for many years on the staff of the Bronx Hospital; aged 58; died, March 9, in Miami Beach, Fla.

George Dean Ferguson, West Hartford, Conn.; University of the City of New York Medical Department, 1879; aged 80; died, March 19, of coronary thrombosis.

William Henry Doty, Sanderson, Texas; Memphis (Tenn.) Hospital Medical College, 1900; aged 66; died in March, at a hospital in Del Rio, of pneumonia.

Francis R. Lane, Sheffield, Mass.; Columbian University Medical Department, Washington, D. C., 1885; aged 78; died, March 28, of carcinoma of the prostate.

Stephen Keyes Williams, Detroit; Michigan College of Medicine and Surgery, Detroit, 1906; served during the World War; aged 56; died suddenly, March 1.

William Casey Ingram, Lanagan, Mo.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; also a druggist; aged 73; died suddenly, March 12.

David H. Wood, Coldwater, Mich.; Detroit Medical College, 1876; Civil War veteran; formerly member of the board of education; aged 91; died, March 1.

Baxter Clyde Culler, Martinsville, Va.; Tulane University of Louisiana School of Medicine, New Orleans, 1922; aged 38; died, March 15, of lobar pneumonia.

W. Jonathan Kiefer, Lebanon, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 71; died, March 24, of cerebral hemorrhage.

Paul Francis Ela, Manchaug, Mass.; Harvard University Medical School, Boston, 1894; aged 74; died, February 19, at the Whitinsville (Mass.) Hospital.

Artemus Daniel Killian, Tuscaloosa, Ala.; University of the South Medical Department, Sewanee, Tenn., 1901; aged 65; died in March of pneumonia.

Walter Bruce Bannerman ☉ East Bridgewater, Mass.; University of the South Medical Department, Sewanee, Tenn., 1903; aged 59; died, February 27.

Henry Hanson ☉ Kirkwood, Mo.; Missouri Medical College, St. Louis, 1889; aged 79; died, March 7, in the Barnes Hospital, St. Louis, of uremia.

Paul Kase Jr., ☉ Northwood, Iowa; University of Michigan Medical School, Ann Arbor, 1931; aged 33; died suddenly, March 21, of heart disease.

Frank Philip Zeffass ☉ Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1903; on the staff of the Mercy Hospital; aged 60; died, February 3.

Leonard Francis Cruse, Osage City, Mo.; Marion-Sims College of Medicine, St. Louis, 1897; aged 59; died, March 20, of cerebral hemorrhage.

George Davis, Beaufort, N. C.; Kentucky School of Medicine, Louisville, 1894; also a lawyer; aged 62; died in March of Hodgkin's disease.

Michael Evans Cole, Philadelphia, Miss.; Mississippi Medical College, Meridian, 1907; aged 54; died in March at a hospital in Meridian.

Loretta Mann Hammond, Santa Ana, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1871; aged 94; died, February 13.

Oscar L. Woodall, Iowa Park, Texas; Louisville (Ky.) Medical College, 1894; served during the World War; aged 70; died, March 4.

Henry R. Hoover, Wilson, N. C.; Baltimore Medical College, 1891; aged 76; died, March 16, of a self-inflicted bullet wound.

Jay Stiles, Lena, Ind.; Ohio Medical University, Columbus, 1898; aged 69; died, March 12, in the Putnam County Hospital, Greencastle.

Mae Sherer Harris, St. Louis; Eclectic Medical University, Kansas City, 1901; aged 68; died, March 22, of intestinal obstruction.

Francisco R. de Goenaga, San Juan, P. R.; Universidad de Santiago Facultad de Medicina, Spain, 1878; aged 80; died, March 1.

Thomas H. Diven, St. Louis; Marion-Sims College of Medicine, St. Louis, 1895; aged 67; died, March 22, of pneumonia.

Benjamin Frederick Preston, Farmington, Ga.; Eclectic Medical Institute, Cincinnati, 1908; aged 61; died, February 3.

Robert D. Flippen, Pilot Mountain, N. C.; Louisville (Ky.) Medical College, 1892; aged 65; died suddenly, March 24.

Elkanah B. Head, Franklin, Ky.; University of Nashville (Tenn.) Medical Department, 1870; aged 88; died, March 16.

Andrew Hamilton Miller, Hamilton, Ont., Canada; Trinity Medical College, Toronto, 1877; aged 88; died, February 10.

Homer Head, Dahlonega, Ga.; University of Georgia Medical Department, Augusta, 1900; aged 70; died, March 10.

Theodore E. Hoyt, Hondo, Calif.; Jefferson Medical College of Philadelphia, 1879; aged 88; died, March 22.

Alfred Jonathan Downs ☉ Los Angeles; Jefferson Medical College of Philadelphia, 1901; aged 60; died, March 12.

Henry Evans Thompson, Senecaville, Ohio; Ohio Medical University, Columbus, 1900; aged 75; died, February 7.

John Evan Engstad, Grand Forks, N. D.; Rush Medical College, Chicago, 1885; aged 78; died, February 19.

James E. Gray, Danville, Ohio; Illinois Medical College, Chicago, 1898; aged 72; was found dead, March 4.

Warren Riley Stateler, Dupont, Ohio; Kentucky School of Medicine, Louisville, 1893; aged 72; died, March 2.

Howell Cobb Strickland, Gillsville, Ga.; Atlanta Medical College, 1890; aged 76; died, February 26.

Samuel C. Balch, Etiwanda, Calif. (licensed in Illinois in 1877); aged 86; died, March 11.

B. N. Spears, Junction City, Ark. (licensed in Arkansas in 1903); died, February 20.

Bureau of Investigation

SEX AND GLAND REJUVENATORS

Postmaster General Clamps Down on Mail Order Frauds

The United States Post Office Department has recently clamped down on several concerns exploiting gland remedies of the sexual rejuvenation type.

BERLIN PRODUCTS COMPANY

On March 22, 1937, the Acting Postmaster General, Harlee Branch, issued a Post Office fraud order against the Berlin Products Company, the Atlas Products Company, the Atlas Products, and their officers and agents, of Chicago.

According to the fraud order, a Mr. Charles S. Thompson sold through the mails preparations called "Prescription No. 25" and "Prescription No. 40," for sexual deficiencies and allied conditions in men and women. The enterprise was started in August 1936 by J. Walker Jones, who, after two weeks' operation, sold it to the present proprietor.

Victims for the nostrums were obtained by newspaper and periodical advertisements. One such advertisement read:

"FOR MEN AND WOMEN MAKE THIS TEST AT OUR RISK

"Don't feel old. Be young at 60. Help your glands by using famous doctor's own guaranteed private prescriptions of proven merit . . . Prescription No. 25 for men, and prescription No. 40 for women. These prescriptions assist nature in restoring the prostate, ovaries and other glands of the body to normal activity. Harmless and effective. Price \$1.00, super strength, \$4.00. If C. O. D., postage extra.

MONEY-BACK-GUARANTEE

After 6 days trial, if you are not satisfied, return the unused portion of the medicine and your money will be returned. You be the judge.

BERLIN PRODUCTS CO., 454 E. 42nd St., Dept. 4, Chicago, Ill."

The promoter advised the post office inspector who investigated the case that the formula for the preparations is as follows:

Prescription No. 25, Orchic Substance, prostate substance, ext. nux vomica, ext. yohimbin, and zinc phosphide.

Prescription No. 40, Ovarian substance and pituitary substance.

The therapeutic effects of the active ingredients are well known to the medical profession. Substances such as are contained in Prescription No. 25 have no value in restoring the prostate to normal or rejuvenating sexual vigor. The claims made for Prescription No. 40 for women were also held to be false.

BIO-CHEMICAL LABORATORIES, LTD.

The Bio-Chemical Laboratories, Ltd., the Laboratori Biochimici, S. A., the Laboratories Biochimiques, S. A., and the Biochemische Laboratorien, A. G., of Locarno and Melano, Switzerland, had the United States mails closed to them on April 6, 1937, for selling through the United States mails a fraudulent "gland treatment" called "Bulltone," a "Sexual and Nerve Tonic for men."

According to the fraud order, a chemical analysis of the preparation showed that it consisted "essentially of animal or glandular matter, kola nut and yohimbin."

Yohimbin at one time was thought to have value in sexual impotence but has long since been discarded by the medical profession.

The post office authorities held that it was false to claim that Bulltone was a proper treatment for "all stages and forms of sexual debility, nervous derangements, general weakness, loss of memory, increased liability to tiredness, neurasthenia."

ZION HOLY SPIRITUAL MISSION

On April 7, 1937, the Postmaster General closed the mails to the Zion Holy Spiritual Mission; Zion Holy Spiritual Laboratories; Zion Holy Spiritual Mission Laboratory; Rev. E. N. French, D.D.; Rev. E. N. French, D.D., Manager; Rev. Dr. E. N. French, Spiritual Adviser; Rev. Dr. E. N. French, Spiritual Adviser and Bishop; Zion Holy Spiritual Mission Distributing Auxiliary, and their officers and agents as such.

The "Rev. E. N. French, D.D.," a thirty-five year old British West Indian Negro, operated a combination mail order business and a so-called "mission" in Chicago. According to the

post office report, 75 per cent of his mail order business consisted of the sale of a preparation called "Bry-o-lyn" for "blood trouble," lost manhood and various other diseases and ailments. The versatile Rev. French also sold a "kidney and bladder treatment," a "bowel" preparation, an alleged remedy for piles, a corn treatment, and various talismanic seals.

Bry-o-lyn, the leader of the French preparations, was analyzed by the Food and Drug Administration and shown to contain "iron, emodin and small quantities of ammonium, magnesium, sodium, potassium sulfate and chloride." It was essentially an iron solution containing saline laxatives and was, of course, wholly worthless for the diseases and ailments for which it was recommended.

The kidney and bladder nostrum was found to contain copaiba, potassium nitrate, emodin, magnesium, iron sulfate and carbonate. The pile medicine consisted of a white salve containing a small percentage of calomel, phenol and boric acid.

French, the post office evidence shows, is not a physician, chemist or pharmacist; neither had he ever been ordained as a minister.

WEST COAST SPECIALTIES COMPANY

The West Coast Specialties Company, Pacific Coast Specialties Company, and their officers and agents as such at Portland, Ore., were found by Acting Postmaster General Howes on April 27, 1937, to be conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.

According to the post office report, the West Coast Specialties Company and the Pacific Coast Specialties Company are names used by a J. E. Tryzelaar in the sale through the mails of a "marvelous secret." The "secret" was represented as enabling the possessors to retain their youthful appearance and vigor regardless of age and to overcome various diseases and ailments incident to advancing years.

Patronage was attracted through advertisements of the "Be Young at 60" type. Among other representations was the "gag" used by practically all food faddists that the ordinary diet lacks certain vital food elements. "Absence of this unusual food element in the daily diet is the chief cause of premature old age, graying or falling hair . . . mental depression . . . hardening of the arteries and high blood pressure."

The gullible who made remittances received a single, letter-size, printed sheet containing the "Vital Health Secret." The secret seemed to be that ". . . iodine is essential for the health of man," and some rambling phrases purporting to show the incidence of iodine deficiency and goiter.

Iodine, therefore, in varying doses, was recommended as an old age preventer and as a means of eliminating gray or falling hair, wrinkles, facial lines, sagging muscles in the face and neck, pyorrhea, tooth decay, poor circulation and various other ailments. The medical evidence introduced by the post office authorities failed to concur that iodine possessed such marvelous therapeutic properties, and the Postmaster General closed the mails to the aforementioned concerns and parties.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Golden Brown Ointment.—McKesson-Van Fleet-Ellis Corp., Memphis. Composition: Essentially petrolatum with 10 per cent of mercuric oxide. For eczema, rash, pimples, skin discolorations, etc. Fraudulent therapeutic claims.—[N. J. 21978; September, 1934.]

Men-tho-lo.—Leighton Supply Co., Pittsburgh. Composition: Essentially menthol and wintergreen in a mixture of petrolatum, paraffin, starch and water. For toothache, asthma, rheumatism, catarrh, piles, etc. Fraudulent therapeutic claims.—[N. J. 24034; November, 1935.]

Ray-X.—Ray-X Corp., no address given. Composition: A water containing minute proportions of salts in solution. Cure-all. Fraudulent therapeutic claims.—[N. J. 24017; November, 1935.]

Correspondence

"MACHINE FEVER" IN SYPHILIS

To the Editor:—In the May issue of the *Reader's Digest* is a condensation of an article entitled "Machine Fever," by Paul de Kruif, which appeared originally in the *Country Gentleman* for April. The condensed article in the *Reader's Digest* contains one sentence at the beginning of the second paragraph on page 109 which reads "No longer, then, need a victim of early syphilis come once a week for almost two years for treatment with the standard arsenic and bismuth dosage." I must confess that I am disturbed by the implications of this detached sentence, particularly since it bears on certain experimental studies which we have carried out at the Kettering Institute for Medical Research in Dayton.

In the original article by de Kruif, he described accurately and in some detail the character and extent of the experimental studies on the treatment of early syphilis with artificial fever therapy combined with chemotherapy. De Kruif stated that these experiments had extended only over four years and had involved only thirty-two patients. To quote from the original article in the *Country Gentleman*: "All these thirty-two have been given the now safe, practical machine fever; and at the same time small, safe shots of arsenic and bismuth drugs are injected to reinforce the fever's power. This test has been in progress only four years; it is still strictly experimental; and it is true that syphilis is of all plagues the longest, sneakingest, most treacherous. . . ."

In our publications in medical literature we have emphasized repeatedly the purely experimental character of the application of artificial fever therapy as an adjunct to chemical therapy in the treatment of early syphilis. While there is no longer any valid reason to doubt the efficacy of fever therapy in the treatment of syphilis of the central nervous system, it would be extremely illogical and indiscreet to intimate at this preliminary stage of the experiment that this method of treatment should be regarded as a tried and proved procedure for the treatment of early syphilis. The standard schema of continuous chemical treatment as outlined by Surgeon General Thomas Parran and the other members of the Cooperative Clinical Group of the U. S. Public Health Service provides, without question, the best method for the mass attack on the enormous number of cases of early syphilis which occur each year in this country. Furthermore, the remarkable results which have been achieved in the nation-wide programs for the eradication of syphilis in Denmark, Sweden and Great Britain leave little doubt as to the efficacy of controlled and adequate chemical therapy in the mass-management of the disease.

Even in the few cases of early syphilis in which artificial fever therapy has been combined with chemotherapy the patients have received injections of arsenic and bismuth preparations for several months. It will require many more years of diligent experimentation before the combined artificial fever-chemical method of treatment of early syphilis is established as sound practice or rejected. The constant development of simpler and safer methods for the production of artificial fever should stimulate vigorous inquiry of the possibility that the time, effort and expense involved in the adequate therapy of early syphilis may be greatly lessened. Such studies should be restricted to those large clinics in which adequately trained personnel may engage in long-term, controlled experiments.

There are no tried and proved "short cuts" to the treatment of syphilis. To create such an impression would be to declare a Roman holiday for the charlatan.

WALTER M. SIMPSON, M.D., Dayton, Ohio.
Director, Kettering Institute for Medical
Research, Miami Valley Hospital.

EDUCATIONAL LANGUAGE TEST FOR PHYSICIANS

To the Editor:—In THE JOURNAL, Oct. 3, 1936, in a communication entitled "Vocabulary of Physicians and Aptitude Tests," there is a list of words from Garrison's History of Medicine used in the aptitude tests.

I hate to admit it but there were many that I had never seen before, so I began looking the definitions up in Funk and Wagnalls, Webster's latest unabridged Dictionary, and Dorland's seventeenth edition of the Medical Dictionary, 1936, and was unable to find definitions for six of the 131 words.

I presume they are scientific words occurring in biology or botany, but certainly they should be in one of these three dictionaries. Would you kindly tell me the definition of the following, or where to find them: farago, marano, mascaron, paracutic, vao and espalier?

It would be interesting to find how many physicians many years in practice could define these words.

C. C. OWEN, M.D., San Bernardino, Calif.

COMMENT.—Farago: A Spanish word equivalent to fardo, which means a bundle.

Marano: A Jew or a Moor who, during the persecution by the Spanish Inquisition, publicly professed Christianity but privately adhered to his own religion (Standard Dictionary).

Mascaron: A grotesque mask (Standard Dictionary).

Paracutic: Probably an adjective from the noun paracusis, in which case it would refer to any perversion of hearing.

Vao: An arrow poison from the United States of Colombia, containing corrovaline; supposed to be adulterated corroval (Foster's Medical Dictionary).

Espalier: A trellis on which to train the branches of fruit trees (Standard Dictionary).—Ed.

ORTHOSTATIC HYPOTENSION

To the Editor:—There is an importance in the article on "Orthostatic Hypotension: The Treatment of Two Cases with Benzedrine Sulfate," by Perk Lee Davis and Margaret Shumway-Davis, in THE JOURNAL, April 10, page 1247, which should be recognized and applauded. This importance lies in the fact that the authors have used a comparatively unknown function of the circulation to determine the effect of a drug. This function of the circulation is its "gravity resisting ability." The symptom that reveals its weakness is "postural" or "orthostatic hypotension." This is measured by comparing the blood pressure lying down with the blood pressure while standing. Postural or orthostatic hypotension (first called blood ptosis) is measured by the amount of fall of blood pressure on standing. The systolic pressure moves more than the diastolic. Differences may amount to as much as from 80 to 100 mm. on standing, and in postural hypotension there may be high blood pressure lying down, low blood pressure standing up.

Postural hypotension has been noted by Ghrist and Brown (*Am. J. M. Sc.* 175:336 [March] 1928), by Bradbury and Eggleston (*Am. Heart J.* 1:73, 1926), Sewall (*Am. J. M. Sc.* 1:491 [April] 1916) and perhaps earliest in America by me (*M. News* 87:529 [Sept. 16] 1905; *New York M. J.*, November, 1913; *Am. J. M. Sc.* 160:721 [Nov.] 1920). Bradbury and Eggleston considered postural hypotension an illness and sought remedies, finding none that would adequately affect the symptom. Ghrist and Brown, at the Mayo Clinic, reported successful treatment by ephedrine sulfate. I have found that digitalis and squill will favorably affect some cases, notably chronic hypotension (Mosenthal, H. O.: *Diagnosis and Treatment of Variations in Blood Pressure*, Oxford University Press, p. 60. Crampton, C. W.: *New York State J. Med.* 36:1087 [Aug. 1] 1936).

The obvious result of these observations has been that certain drugs—digitalis, squill, ephedrine—will favorably affect

postural hypotension. The Davises have added benzedrine sulfate. In this use of postural hypotension as a test of the efficiency of the drug they have added an item of importance to the careful work in clinical observations in the effect of benzedrine sulfate by Wilbur, MacLean and Allen (*Proc. Staff Meet., Mayo Clin.* 12:97 [Feb. 17] 1937), who as yet have not reported on the effect on this significant symptom, which is now, I understand, under way at Rochester. The less obvious but most important fact is revealed that there is now a method of finding out more about the effect of drugs than before; they can be calibrated as to their effect on a factor of circulatory efficiency essential to life and, shown by postural hypotension, this is different from pulse rates and all blood pressures considered singly.

I have repeatedly urged the use of this symptom for pharmacologic assay and welcome the work of the Davises. Let others follow.

C. WARD CRAMPTON, M.D., New York.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

WAS A DIAGNOSIS OF SYPHILIS JUSTIFIED?

To the Editor:—In December 1930, on the basis of a single four plus Kahn reaction, a diagnosis of syphilis was made in the case of a white man, aged 20, single. There was no history of exposure or evidence of a primary lesion. No familial history or congenital stigmas of syphilis could be ascertained. The patient has continued well and healthy on active duty in military service. His conduct is exemplary. Treatment to date has consisted of forty-nine injections of nearsphenamine, fifty-five of bismuth compounds, seventy mercury injections or inunctions, and an indeterminate amount of mixed treatment and potassium iodide by mouth. Twenty-five serologic tests have been performed (Kahn and Wassermann). These have ranged the scale from 0 to 4 plus with no apparent relation to treatment. Two spinal fluid examinations have been negative. The Bureau of Medicine and Surgery, United States Navy, disapproves establishing a diagnosis of syphilis by means of serologic positivity alone. The institution of treatment clouds the issue as to the true diagnosis ever being definitely known. False positive serologic results do occur. Within the past two years I have seen them reported in cases of influenza, malaria and vaccinia. Syphilis has been ruled out in these cases by the prolonged observation of various medical officers. The serologic reaction returned to negative without treatment. The spinal fluids were normal. The person involved craves assurance that he is nonsyphilitic. In view of the fluctuating serologic reaction I have hesitated, though it would appear that adequate treatment has been given. My advice has been to watch and wait. I would greatly appreciate your opinion as to the validity of the diagnosis, whether further treatment is indicated and how you would advise this patient.

M.D., Florida.

ANSWER:—This inquiry involves two points for discussion: (1) the issue of nonspecific or falsely positive serologic tests and (2) the question of latent syphilis. In regard to the first point, since the advent of the flocculation tests clinicians have been confronted with "weak positive" reports in patients who have neither signs nor symptoms nor a history of syphilis. This type of report is encountered in patients who have systemic disease not of syphilitic nature as well as in those who are apparently perfectly well. The majority of serologists are loath to accept the idea that such reports may be falsely positive, and many clinicians will not accept such reports as diagnostic of syphilis. In a sense both the clinician and the serologist are right because these "weak positive" reports are encountered in persons known to have syphilis and on the other hand they have also been reported during the menstrual period, in association with endocarditis, cutaneous and glandular tuberculosis, lymphoblastoma, and during numerous febrile states. The interpretation of these reports, especially when numerous tests are done with variations in the degree of positivity, is difficult. It is suggested that, when inconclusive reports are obtained from one laboratory in this way, a specimen of blood be drawn not sooner than eight hours after the patient has eaten and divided so that it can be placed in two or three test tubes and sent to two or three different laboratories for examination. This permits all the laboratories to examine the same specimen. The majority of these reports should be accepted as authentic.

The diagnosis of syphilis was accepted and treatment was given in 1930, and the patient is now clinically negative; the spinal fluid is negative but there are variations in the serologic report. If we accept the original diagnosis as correct, the patient is in the latent phase of syphilis and should be treated with two courses of bismuth compounds a year for several years to come. It is not possible from the data furnished to determine accurately now whether the patient ever had syphilis, as the facts that he is clinically negative and his present physician feels that the reports are false positives are not sufficient reasons to discard the original diagnosis as made in 1930. In fact, the responsibility of the diagnosis rests on the physician who accepted the report and started treatment, and there is not sufficient evidence available now to say that he was in error.

The opinion expressed that a diagnosis of syphilis should not be made on the basis of positive serologic tests alone is not warranted if for no other reason than the fact that patients in whom the diagnosis of syphilis was supported by clinical manifestations may develop latency and remain serologically positive indefinitely. When such cases are encountered for the first time, the serologic evidence confirmed by repeated tests in an accredited laboratory is the only basis for the diagnosis of syphilis.

It is readily understood why the inquirer is loath to accept the diagnosis of syphilis now and why he believes the reports are not authentic. Similar problems are encountered frequently by syphilologists, and in the future, as the serologic tests become more sensitive, more confusion will be created in the minds of physicians who encounter patients with syphilis occasionally because more falsely positive tests will be reported. Sometimes our sympathy for the individual involved will sway our judgment and lead to the ignoring of an authentic positive test, an offense as serious as treating an individual because of a falsely positive test.

Accordingly, it would seem wise to accept the diagnosis as made in 1930 and to continue with bismuth treatment and observation. Further repetition of the spinal fluid test is not necessary. Following an observation period of three years, if no clinical symptoms appear, the patient may marry if he so wishes.

LYMPHEDEMA OF LEG

To the Editor:—A white woman, aged 28, came to me complaining of swelling of her right leg from the ankle to approximately 4 inches below the knee. In April of this year she had erysipelas of this area, which was treated by violet ray and in due time disappeared. However, after the erysipelas was apparently cured she began to notice that the leg would swell, especially with standing or walking. After a night's rest in bed the leg would be of normal size, but within three hours after she resumed activity the swelling would reappear. The remainder of the physical examination was negative and the past history was negative. She has used hot epsom salt packs to this area, infra-red radiation, ultra-violet rays and high voltage roentgen therapy. She has had no treatment for three weeks but still complains of and exhibits swelling of this leg. Can you suggest any medication or treatment that I might give her to relieve this condition? Please omit name.

M.D., Ohio.

ANSWER:—Apparently the patient had acute lymphangitis and cellulitis in April, which was followed by lymphedema. Acute lymphangitis and cellulitis produce lymphedema by effecting thrombosis of the lymph vessels, which produces lymph stasis, which in turn causes an overgrowth of connective tissue and obstruction of the lymphatics. While one cannot determine the etiology of the episode of acute inflammation from the history of this case, one should always suspect trichophytosis, as this condition is responsible for single or recurrent episodes of acute lymphangitis and cellulitis of the lower extremities in a considerable number of cases.

The treatment consists in active treatment of trichophytosis, if this condition is present, and prevention of the edema by adequate bandaging. An important first step is elevation of the extremity until as much as possible of the lymph has been removed from the extremity. Cloth bandages are of little or no value; the support which they give is of little value. Elastic stockings are unsatisfactory in many instances, for the same reason; they tend to stretch and lose their elasticity. Adhesive bandages are somewhat more efficient than the previously mentioned supports. The entire criteria for establishing the value of any type of support is control of edema; a support that does not prevent swelling, when the patient is active, is valueless; one that prevents swelling is adequate. A pure rubber roller bandage, 3 inches wide and 15 feet long, is preferable. Of the three weights available, the proper one prescribed for any specific patient depends on the difficulty in controlling the edema. Ordinarily, the bandage is applied over a lisle stocking, beginning by making two turns about the foot, two figure-eight turns about the ankle, and progressing up the extremity

to the knee. The toes and part of the heel are left exposed. The bandage should be removed and applied in the same manner each time, as it becomes shaped to the extremity on repeated use. If it is applied too tightly, the toes become discolored, cold and numb. If it is applied too loosely, edema results. Patients soon become adept at bandaging their legs efficiently. The bandage should be removed at midday and reapplied over a dry stocking after the patient has rested for an hour. The same procedure is repeated at night if the patient is active. If he remains home, he may remove the bandage and elevate the leg, while sitting. Patients object to wearing the bandages because of the inconvenience in applying them repeatedly, the slight discomfort, and their unsightly appearance. This is particularly true of women, who object to the appearance of the bandaged limb. Frequently a well fitting elastic stocking may be used for "dress" occasions, and the use of the heavier rubber bandage may be reserved for ordinary activity. It is well to point out to women that the lymphedematous leg has an abnormal appearance which the bandage increases but little, and to emphasize that uncontrolled edema almost invariably causes a gradual increase in the size of the limb. Information regarding how long the bandage should be worn is not available; in some instances it must be used indefinitely; in others, improvement in circulation of the lymph may occur. Once every month or so the bandage can be left off for a day as a trial. If edema reappears, the support must be worn again.

A detailed description of lymphedema is given by E. V. Allen and R. K. Ghormley in the *Annals of Internal Medicine* 9:516 (Nov.) 1935.

TREATMENT OF SYPHILIS

To the Editor:—In December 1933 I began treating a white man, aged 27, for syphilis. He came to me with a rash of unknown origin on both arms. The body otherwise was normal. In 1927 he was treated for a primary lesion which healed, and for three years following the course of treatment the Wassermann reaction was negative (taken at six months intervals), at which time he was pronounced cured. The spinal Wassermann reaction also was negative. When I first saw him the Wassermann and Kahn reactions were four plus and the ensuing treatment and Wassermann reactions were as follows: January 6 and 12, 4 Gm. of neosphenamine; January 19 to March 3, seven 1 cc. doses of iodobismuth intramuscularly; March 9 to April 7, five doses of 0.4 Gm. of neosphenamine, Wassermann reaction four plus; April 18 to June 4, six doses of 2 cc. of bismuth subsalicylate in oil (0.4 Gm.) intramuscularly; June 18 to 30, 0.6 Gm. of neosphenamine (delayed reaction chill, abdominal cramps, diarrhea and temperature of 104, coming on six hours after injections); September 22 (Wassermann and Kahn reactions one plus and two plus respectively) to November 14, eight doses of 0.6 Gm. of neosphenamine; December 4 (Wassermann and Kahn reactions negative) to Jan. 16, 1935, five doses of 0.4 Gm. of bismuth subsalicylate in oil intramuscularly; June 4 (Wassermann and Kahn reactions both one plus) to July 24, six doses of 0.6 Gm. of neosphenamine; July 31 (Wassermann reaction four plus) to August 23, four doses of 0.4 Gm. of bismuth in oil; August 23 to October 17, mercury rubs three times weekly; October 17 to November 29, six doses of 0.4 Gm. of bismuth in oil; January 1936, Wassermann and Kahn reactions one plus; July 13 to August 21, six doses of 0.06 Gm. of mapharsen; September 25 to November 4, four doses of 0.06 Gm. of mapharsen and four doses of 0.4 Gm. of a bismuth compound alternating (Wassermann reaction four plus, Kahn reaction three plus); November 14 to December 2, three doses of 1 Gm. of sodium thiosulfate intravenously; Jan. 8, 1937, to February 5, four doses of 0.04 Gm. of mapharsen; February 15 to March 10, four doses of 0.4 Gm. of bismuth in oil; March 18, Wassermann and Kahn reactions 4 plus. The patient's physical examination and reflexes are normal. His weight is 124 pounds (56 Kg.). The pupils are equal and regular; they react to light and in accommodation. The spinal Wassermann test has not been done. Kindly advise me whether treatment has been inadequate and, if so, what more can I do, as I am naturally anxious to get his patient cured if at all possible.

M.D., New Jersey.

ANSWER.—The treatment given this patient following his original infection has not been described. It is presumed, however, from the statement made that he was treated only until the primary lesion disappeared. The Wassermann test as a rule will revert to negative following approximately six injections of an arsenical compound, which probably accounts for the negative Wassermann reaction between 1927 and 1930.

The patient certainly has received adequate treatment by the correspondent from 1933 until the present time. The fact that the present Wassermann reaction is still four plus may be due to several factors. One of these factors may be the inadequate treatment given during the first two or three years following infection. Other factors that may produce a persistently positive blood Wassermann reaction are syphilis of the central nervous system, cardiovascular syphilis, bone syphilis and visceral syphilis. It is suggested that a spinal puncture be done to determine the reaction of the spinal fluid at this time. It is also suggested that a thorough medical examination, including roentgenologic study in order to eliminate cardiovascular syphilis, be made. Should all these procedures prove negative, it would seem probable that this is

one of those unusual cases of Wassermann fastness with no clinical evidence of syphilis. In this case it is suggested that treatment be stopped but that the man be observed for several years, during which time frequent serologic and clinical check ups should be made.

ETIOLOGY AND TREATMENT OF ACNE OF FACE AND SHOULDERS

To the Editor:—What is the etiology of acne of the face and shoulders? A woman and her two daughters are suffering from this condition at intervals. The condition becomes more acute two days before the menstrual period and remains at the height clear through this period and two or three days following. The skin gradually returns to normal and remains so for about one week prior to the next period. These patients have been reading in the papers and magazines about wonderful results following the taking of yeast. Is this a purely allergic condition? If it is, how should I go about it to find out the cause and what is the value of yeast in these cases? Kindly advise general treatment. If place in THE JOURNAL, please omit name.

M.D., Illinois.

ANSWER.—Because of its usual advent at puberty, it has long been recognized that the development of the sex glands has much to do with the etiology of acne vulgaris. The exacerbations so often noticed at the menstrual periods as mentioned in the query emphasizes this relation. There are records of adrenal tumors in young children, accompanied by precocious sexual development and acne vulgaris.

Along with the development of hair at puberty, one can easily understand a stimulation of the sebaceous glands. Most cases of acne show abnormal activity of these glands; the skin of the face, perhaps of the back and chest, is greasier than normal. Some patients with superficial acne, however, have dry skins. It is therefore not only an increased function of the sebaceous glands that is at fault. Comedones are the forerunners of acne pustules and some cases of acne are manifested only by comedones. These are caused by an abnormality of horn formation in the outer layer of the skin. The horny layer grows at the mouth of the follicle, narrowing the orifice and preventing the semisolid sebum from being pushed out on the surface. The sebum distends the follicle just below its orifice into a bottle shape and hardens to form a solid plug. This may remain for a long time, collecting dirt on its surface, or it may soon, by acting as a foreign body, set up an irritation which results in an infiltrate of round cells, plasma cells, mast cells and giant cells. Eventually these are replaced by polymorphonuclear leukocytes and a pustule forms. This, if superficial, soon breaks, liberating the comedo and subsiding until another comedo forms. If deep, the pressure and toxins result in destruction of connective tissue and are healed by scar formation. Whether a qualitative change in the sebum has anything to do with the process is not known. Bromide and iodide internally set the process in action, as do oils or tars and tarlike substances applied externally. These may act directly on the horn-forming process in the skin or may act through changes in the sebum.

Rosenthal and Neustaetter measured the estrogen found in the blood of young girls with acne vulgaris. In only two of twenty-nine girls with normal menstruation who suffered with acne was a normal amount of estrogen found in the blood; that is, 1 mouse unit in 40 cc. of blood. In sixteen girls the amount was less than normal and in eleven there was none present. This, if substantiated by further study, will support the theory derived from clinical observation. (Rosenthal, Theodore, and Neustaetter, Theodore: Estrogenic Substance in the Blood of Patients with Acne, *Arch. Dermat. & Syph.* 32:560 [Oct.] 1935.)

Lawrence and Feigenbaum tried to treat acne in youths of both sexes by administration of the gonadotropic principle derived from pregnancy urine. They were moderately successful, as others have been. Much more experience is necessary, however, before the method can be said to be an established success. (Lawrence, C. H., and Feigenbaum, Jacob: The Treatment of Acne Vulgaris with Pregnancy Urine Extract, *New England J. Med.* 212:1213 [June 27] 1935. Lawrence, C. H.: The Anterior Pituitary-like Hormone: A Clinical Study of Its Effects in Acne Vulgaris, *THE JOURNAL*, March 21, 1936, p. 983.)

Hollander (Hollander, Lester: The Role of the Endocrine Glands in the Etiology and Treatment of Acne, *Arch. Dermat. & Syph.* 3:593 [May] 1921) thinks that cases of acne can be classified as:

1. Hyperthyroid. Thin, anemic, with thyroid hyperactivity.
2. The ruddy, overnourished type with sluggish metabolism. He asserts that the condition in type 1 improves on the administration of adrenal cortex extract, of which he gives 0.3 Gm. three times daily for two weeks and then, if indicated, the same dose four times a day for two months. Type 2 patients are given thyroid, beginning with 0.015 Gm. three times daily.

and cautiously increased. The value of the adrenal therapy has been attested by Pusey and Rattner.

Hereditry, of course, plays an important part in the etiology of acne, for the character of the skin and the peculiar combination of the endocrine glands one possesses are derived from one's ancestors.

On this prepared soil, with comedones and excessive oiliness, accompanied often by seborrhea of the scalp, secondary causes produce marked results. Anemias, cachexias and toxemias of many kinds so reduce the resistance of the skin that pus is freely formed, resulting in some cases in severe exacerbations of the disease and lifelong deformity.

Constipation has an important contributory effect. Not seldom exacerbations of the disease can be traced to this cause. Irregular hours, lack of rest, overwork and anxiety over studies may play an important part.

Local infection of the skin as a specific cause of acne has been discredited by the work of many investigators. Lack of resistance to the always present staphylococcus explains pus formation sufficiently.

Gastric hypo-acidity has been blamed for acne, probably because improvement has occurred in some cases on treatment with dilute hydrochloric acid. Immerman investigated the stomach acidity in ninety-three cases of acne vulgaris and found no satisfactory evidence of abnormal gastric secretion. (Immerman, S. L.: Gastric Acidity in Acne Vulgaris, with a Consideration of Normal Gastric Acidity, *Arch. Dermat. & Syph.* 31:343 [March] 1935.)

A pathologic sugar metabolism has also long been suspected of a rôle in the etiology of acne vulgaris. Crawford and Swartz studied ten cases of acne vulgaris; none showed abnormality of sugar metabolism and in five the condition actually improved on an increase of sugar in the diet. If further study should substantiate this report, one of the cardinal features of the dietary treatment of acne vulgaris would cease to have any scientific foundation. (Crawford, G. M., and Swartz, J. H.: Acne and the Carbohydrates, *Arch. Dermat. & Syph.* 33:1035 [June] 1936.)

White writes of acneform eruptions of the face and claims to be able, by elimination diets as suggested by Rowe and others, to establish certain foods as etiologic in certain cases. He advises the trial diet, which need not be a balanced one for the short period but in thin patients should be up to calory requirements. If no new lesions appear, foods should be added one at a time until an exacerbation occurs, showing the adverse effect of the food last added. What disease of the face he treated, whether acne vulgaris with inconspicuous comedones, acne rosacea, or one of the other less common diseases somewhat resembling acne, he does not state. (White, C. J.: Acneform Eruptions of the Face, *THE JOURNAL*, Oct. 27, 1934, p. 1277.) This theory is an interesting one but requires confirmation. Certainly acne vulgaris is not the sort of skin disease that one would suspect of sensitization. The sebaceous glands are undoubtedly quite sensitive to minute amounts of iodide or bromide, and it may easily be possible that other substances have a like effect. This is not an allergic sensitization, however.

The effect of the sodium poor, vitamin rich diet of Gerson, Herrmannsdorfer and Sauerbruch has so decided an influence on tuberculosis of the skin that it has been tried in acne. Lerner reports good results in the pustular types of acne by the use of this diet, though it must be continued for several months before the cation relations of the body can be altered. (Lerner, Charles: Nutritional Treatment of Acne Vulgaris, *Arch. Dermat. & Syph.* 31:527 [April] 1935).

The value of yeast in the treatment of acne vulgaris is supposedly due to its content of vitamin. The results as seen by dermatologists, however, have been disappointing. Few have been benefited and some have been made worse by the treatment, pustules increasing in number and size during the period of yeast therapy.

All the therapeutic results in acne vulgaris must be judged with a large portion of skepticism. The fluctuations of the disease are so unpredictable that it requires but little optimism to see improvement from many different procedures that may be mere coincidence.

The general treatment of acne consists in improving the general health in every possible way, relieving constipation if present, and regulating the hours of rest, of work and of play. The use of hot water and soap, even use of a scouring soap in the effort to loosen the tops of comedones, is advised. Ablution should be followed by the application of hot towels for ten or fifteen minutes, to be followed by a cold rub for a few minutes, drying, and application of a lotion. Sulfur lotions may be given, either solution of sulfured lime diluted with ten parts of distilled water or lotio alba (sulfured potash and zinc

sulfate, of each 2 Gm. in rose water sufficient to make 60 cc.). Either of these is dabbed on the skin and allowed to dry. (Lotio alba should be shaken before use.) When these measures make the skin dry and scaly, they should be stopped until the dryness disappears.

It is good practice to open the pustules and gently squeeze out the contents. Comedones too may be squeezed out, if the squeezing can be done without injuring the skin. If the patient does this, directions for its proper performance and a warning against the use of undue force should be given.

Vaccines and toxoids may help to cut short a pustular exacerbation. Ultraviolet exposures or sun baths to the point of slight reaction with exfoliation give temporary emptying of pustules and some comedones. It is claimed that long continuance in such treatment results in cure, but most patients get discouraged before this happy termination is reached.

Roentgen rays in small doses, from 37 to 70 roentgens once a week to each area, give the best results in the deep type of acne. They should not be given if milder measures suffice, particularly in young persons. The limit of treatment for the average case is three full skin units (900 roentgens) on each area.

Every precaution must be taken to protect against overtreatment. The patient should be warned against accepting further roentgen treatment on changing physicians, unless the doctor proposing it is aware of the dosage already received.

GLANDULAR DEFICIENCY OR DEFICIENT UTILIZATION OF CALCIUM

To the Editor:—During the past two years I have seen a number of women who have many symptoms in common and whose therapy presents a great deal of difficulty. They are all between the ages of 20 and 35. Most of them have had children but some are unmarried. Their chief complaint has usually been extreme fatigue, and this has been associated with inability to regain weight after losses that range up to 20 or 25 pounds (9-11 Kg.), nervous instability and emotionalism, sensitivity to cold and some degree of menstrual irregularity. Many of these patients have had vague gastro-intestinal symptoms and some have had diarrhea as a result of colonic instability. Mental dullness is not present in any of these cases. As a matter of fact, most of these patients have been very keen mentally. Physical examination has usually revealed underweight, dryness of the skin and hair, and a tendency in a few to acne and definite hypotension. Tachycardia has been present in a few instances. Laboratory studies have occasionally revealed a moderate, secondary type of anemia, but the most striking feature has been the low metabolic rates, which have ranged from -15 to -25. In a few instances blood cholesterols were done and were usually elevated, but not always so. The blood sugar has tended to be low. These cases have seemed to be instances of mild pituitary cachexia. In many of them, thyroid extract has been tried and has usually failed to give more than very temporary relief and frequently has failed to cause any relief of symptoms or even to elevate the metabolic rate even when given in moderately large doses. I have used Armour's anterior pituitary extract at the rate of 1 cc. three times a week without appreciable change. I have also used other anterior pituitary extracts and I have been considering the use of the adrenal cortex substance made by the Wilson Company. It has seemed to me that the general anterior pituitary deficiency, particularly of the thyrotropic hormone, was the responsible factor and that, if I could find suitable replacement therapy, the problem of treatment would be much less difficult. I will appreciate your suggestions as to treatment of these cases with specific instructions as to amounts of pituitary hormones necessary if you feel that these are indicated, and also your opinion as to which of the commercial products now available are most suitable. Please omit name.

M.D., Pennsylvania.

ANSWER.—Many of the symptoms shown by these patients, such as extreme fatigue, loss of weight, nervous instability and emotionalism, sensitiveness to cold and severe menstrual irregularity, with keen mentality, occasional tachycardia and skin disturbances, may all be due to deficient calcium utilization. In fact, they are among the classic symptoms of a disturbed calcium balance. The remaining symptoms of low blood sugar and low blood pressure are occasionally seen in the vagotonic forms of calcium deficiency.

Without knowing the complete blood chemistry or the physical examination results, such as myotatic irritability, myo-edema or a Chvostek reaction, some difficulty of course arises in making a satisfactory diagnosis.

The best suggestion is that the cases be treated as subcalcium utilization types with the administration of calcium and vitamins for the vagotonic types and calcium with parathyroid gland for the sympathicotonic ones.

Parathyroid tablets are not demonstrably effective by mouth; parathyroid extract administered three times a week hypodermically in doses of from 0.3 to 0.6 cc. as beginning doses may be employed. These injections ought not to be given oftener than three weeks a month and should be discontinued as soon as the symptoms are relieved. On no account ought they be given over long periods as routine treatment.

USE OF TETANUS TOXOID IN ALLERGIC CHILD

To the Editor:—I have a 10 year old son who is one of the most highly allergic individuals that I have ever had the misfortune to know. He had diphtheria toxin-antitoxin when an infant and is also known by skin tests to be very sensitive to horse serum. His chief allergic manifestations are severe asthma, from which he is practically never entirely free, an allergic nose, a slight amount of eczema, and formerly severe gastro-intestinal cramps. Will you be kind enough to give me the best current information on the value of tetanus toxoid? The boy is no more apt to be a candidate for tetanus and gas immunization than any 10 year old youngster, but I shudder to think of being confronted with the necessity of giving him any kind of serum. Is there a gas bacillus toxoid? Under these circumstances would you advise the use of these toxoids? What is known of the duration and strength of the resulting immunity? Your advice and reference to literature, as well as the names of companies supplying such material, will be most appreciated. Please omit name.

M.D., California.

ANSWER.—Tetanus toxoid seems to be gaining in recognition as an effective, harmless preventive of tetanus. Investigation has shown that in animals and in man tetanus antitoxin is produced in response to immunization with toxoid. In France such immunization has reduced markedly tetanus in army horses, and centers have been established for immunization of workers exposed to tetanus infection. The introduction of immunization in the army is under consideration. According to Ramon (*Rev. d'immunol.* 1:37 [Jan.] 1935) the best results are obtained by the usual three injections of toxoid followed by a further injection a month or more after the third injection or on the occasion of dangerous trauma. The immunity is believed to endure for several years. Reliable tetanus toxoid is available in this country but gas bacillus toxoid is not. At present practically nothing is known about immediate effects of tetanus toxoid or gas bacillus toxoid in children as sensitive as the boy mentioned in the question and consequently it may be safest to postpone immunizations as long as there is no grave or unusual danger of infection with tetanus or gas gangrene. Toxoids contain no serum.

LICHEN PLANUS

To the Editor:—Please outline the most widely accepted methods of treatment of lichen planus. Do sufferers from this condition have recurrences throughout life? Please omit name.

M.D., Ontario.

ANSWER.—There are many methods of treating this disease, which means that none of them are specific and sure. Any one of them may fail in any particular case. The disease occurs in two forms, the rare acute form and the ordinary chronic form.

The acute form should be soothed until its features of irritation subside. The patient should rest in bed if possible. Diet should be easily digestible and free from high flavoring, salt or smoked fish or meat, and alcohol. The urine should be examined early and at intervals. A few cases have been accompanied by glycosuria.

Soothing baths, such as the colloid alkaline bath, should be used. Three cupfuls of bran, oatmeal or starch are boiled in a gauze bag to make a porridge. A cupful of baking soda is stirred into a half tubful of water, the gauze bag of porridge is stirred and squeezed in the bath, and the temperature of the latter brought up to 37 C. before the patient gets in. If the water does not cover the patient completely, towels, kept wet and warm, should supplement it. The first bath should be of only ten or fifteen minutes' duration, but later ones may be longer if well received.

Instead of this, Jacquet's "douches sédatives" may be used, a spray under moderate pressure at a temperature of about 35 C. for from two to five minutes, then a short cold rinse. Alkaline diuretics are sometimes of value, given well diluted after meals.

Some authorities report striking improvement after lumbar or cisternal puncture and the withdrawal of from 10 to 15 cc. of fluid. Sun baths or mild ultraviolet rays have been helpful to some, always less than an erythema dose.

Roentgen rays given over the spine have been used by many dermatologists. One method of such treatment consists in drawing four areas 6 by 2 inches each side of the spine of the prone patient, leaving an untreated strip an inch wide along the spine. Hard rays, 180 kilovolts, are given at a distance of 50 cm. in a slanting direction through these areas so as to cross at about the depth of the spinal cord. A one-fourth inch copper filter is used and one-half erythema dose given to each field once in three weeks for three such exposures. (Andrews, G. C.: *Diseases of the Skin*, Philadelphia, W. B. Saunders Company, 1930, p. 465).

Ointments containing 1 per cent phenol and from 0.25 to 3 per cent menthol may be used for the itching. If widely used, the urine should be frequently examined to guard against

phenol poisoning. Too extensive application of the menthol preparation should not be made for fear of chilling, particularly in sensitive or old patients. Menthol preparations should not be used near the eyes.

After subsidence of the acute symptoms, infectious foci should be cleared up, if possible.

For chronic cases, the general and local remedies already mentioned are often of value. Arsenic as solution of potassium arsenite, asiatic pills by mouth, sodium cacodylate subcutaneously, or mercury salicylarsenate either intramuscularly or intravenously, may be used. Arsenic is the chief remedy and often has to be used in large doses for a long time.

Bismuth compounds, given intramuscularly as for syphilis, has proved valuable in many cases. Yellow mercurous iodide or mercury with chalk by mouth, or the soluble or insoluble salts intramuscularly, is often of great value. The urine must be examined at regular intervals during the administration of any of these metals, and their use stopped on the appearance of albumin or casts.

The arsphenamines have not been of great value in the treatment of lichen planus.

High frequency currents or galvanic electricity, from 4 to 10 milliamperes, given frequently to the patches, are credited with clearing the eruption. Darier recommends high frequency or static baths. (Darier, J.: *Text Book of Dermatology*, translated and edited by S. Pollitzer, Philadelphia, Lea & Febiger, 1920, p. 136.)

Foreign protein therapy, injection of milk and vaccines are sometimes helpful. Stronger ointments of phenol, mercurials, tar and chrysarobin are used for local application to patches of lichen planus. It is well, as Pusey suggests, to begin with the milder strengths and increase them as needed. (Pusey, W. A.: *Diseases of the Skin*, New York, D. Appleton & Co., 1924, p. 456.)

The hyperkeratotic papules of hypertrophic lichen planus must first be softened by applications of sodium or potassium hydroxide or by salicylic plaster or salicylic collodion before treatment can be applied successfully.

	Gm. or Cc.
1. Phenol	0.3
Ammoniated mercury ointment.....	30.0
2. Crude coal tar.....	ad
Zinc oxide	2.0
Petrolatum	30.0
(This may be made stronger as needed, or the undiluted crude coal painted on.)	
3. Chrysarobin	ad
Salicylic acid	1.0
Petrolatum	30.0

The chief rules of treatment are:

1. Soothe the acute cases.
2. Stimulate the chronic cases.
3. Persist.
4. Watch for signs of intolerance.

Recurrences of lichen planus are reported after long periods of freedom from the disease. More often, a few lesions remain for a long time and then there is a relapse. The disease persists for many years, one case of twenty years' duration being known. These, however, are exceptions to the rule that lichen planus clears under weeks or months of persistent treatment and does not recur.

INDICATIONS FOR FEVER THERAPY IN DEMENTIA PARALYTICA

To the Editor:—Is fever therapy contraindicated in the following case? A man, aged 33, since March 1936 has had a right hemiplegia with spasticity of the right upper and lower extremities. There is a mild impairment of memory for recent events as the only evidence of any mental involvement. The blood Wassermann and Kahn reactions are 4 plus; the spinal fluid Wassermann reaction is 4 plus in 1, 0.5 and 0.2 cc.; Ross Jones 1 plus, Pandey 2 plus. There are 9 cells and the colloidal gold curve gives a reading of 5555544320. Please omit name.

M.D., Illinois.

ANSWER.—If the laboratory reports of the spinal fluid examination are correct, it is evident that the patient is suffering from dementia paralytica. It is not certain, however, why the patient developed a right-sided hemiplegia. Not enough clinical data are available to allow one to judge whether this was due to a hemorrhage, to a thrombosis of the cerebral vessels or to some other factor. If the patient is to be treated with pyretic therapy it would be important to know whether his blood pressure is exceedingly high and whether the blood vessels in his brain are friable. If the case is one of thrombosis of some of the cerebral vessels, which occurred in March 1936, fever therapy would be advisable. If it is a cerebral hemorrhage due to hypertension and a syphilitic involvement of the cerebral blood vessels, fever would be contraindicated. All forms of

pyretotherapy have a tendency to increase the systolic and lower the diastolic blood pressure, thus increasing the pulse pressure. For this reason fever, even when produced by physical agents, has a tendency to put a greater load than usual on the entire cardiovascular system.

TREATMENT OF POMPHOLYX

To the Editor:—Would you please advise me as to the latest treatment of pompholyx.

R. W. BENZ, M.D., Honolulu, Hawaii.

ANSWER.—In order to approach the problem of therapy in pompholyx properly the various etiologic factors that might produce this condition must be given consideration. The conception of pompholyx and the dyshidrosiform dermatoses has been the subject of much discussion, and the grouping suggested by Wise and Wolf (*Arch. Dermat. & Syph.* 34:1 [July] 1936) gives a broad conception of the possible etiologic factors that must be given consideration in treatment. They include:

1. Eruptions due to superficial mycotic infections—infections with *Trichophyton*, *Epidermophyton* and yeasts.
2. Eruptions of secondary nature resulting from primary fungous foci—epidermophytids, moniliids and trichophytids.
3. Eruptions caused by exogenous irritants. These fall in the category of dermatitis venenata, occupational dermatoses, trade eczemas, industrial dermatoses, dermatitis eczematosa and so forth. These eruptions are encountered most frequently among dyers, furriers, painters, tanners, leather-workers, barbers, hair-dressers, photographers, workers in ammunition and rubber factories, and in the electrical and oil industries, printers, typesetters, persons who handle food, florists, chemists, druggists, surgeons, dentists, nurses and persons in scores of other occupations and professions.
4. Vesicular eruptions of unknown cause—"eczema," dermatitis eczematosa and pompholyx.
5. Toxic eruptions caused by drugs, foods, etc.

The eruptions representing these groups are at times clinically indistinguishable from one another, and it is essential in the suggested therapy of pompholyx to rule out any of the known etiologic factors.

Pompholyx, per se, is included with the "vesicular eruptions of unknown cause." The local treatment of pompholyx consists of wet compresses of solution of aluminum subacetate, diluted with from 10 to 16 parts of water, or wet compresses of calamine lotion with phenol if itching is severe. Vesicles or bullae are punctured and drained. Fractional x-ray exposures, from 75 to 88 roentgens weekly, to the affected sites are of value. In the dry, scaling stage, the use of 3 per cent ichthammol ointment or 3 per cent salicylic acid and 3 per cent sulfur precipitate in petrolatum is of value. General tonic treatment with the use of arsenic and hematinics is sometimes indicated.

The removal of any etiologic factors mentioned in the outline, and their special treatment, are essential for success in therapy.

PERIODIC INTERMENSTRUAL PAIN

To the Editor:—I should like some information for the treatment of a woman, aged 39, who for a number of years has had periodic pain occurring in the midpelvic region. A number of years ago she had her appendix removed for a similar type of pain. During the past year I have been able to associate this pain definitely with ovulation, as it invariably occurs from thirteen to fourteen days before menstruation, which is irregular, and lasts from an hour to two to several days, and at no time has there been a recurrence until the next midmenstrual period. What can be done in the way of treatment? At times the pain has been severe enough to require morphine. Would an artificial menopause by the use of high voltage x-rays be indicated?

J. R. JARVIS, M.D., Ohio.

ANSWER.—The case is apparently a typical instance of periodic intermenstrual pain, or "mittelschmerz," which has long been looked on as related in some way to ovulation, though the exact mechanism is still unknown. The pain may be of mild degree but in some cases is so intense that it has led to the mistaken diagnosis of some acute abdominal disease, such as acute appendicitis or tubal pregnancy.

In the milder forms of ovulation pain no treatment may be necessary or, at most, some simple analgesic, such as codeine or some other suitable product, together with rest and the local use of heat. For the more severe forms, surgical intervention has often been resorted to, either designedly or under the mistaken diagnosis of some other pelvic condition. Removal of the ovary on the affected side has apparently been the most frequently successful procedure, though the pain may at times recur on the opposite side. In the case described by the correspondent the patient is nearing the menopausal age, and, if the symptoms are sufficiently severe, if they are not relievable by simple measures, and if the question of further reproductive-ness is not of importance in this patient, the x-ray induction

of the artificial menopause would be justified and should relieve the condition. For a recent article on this general subject the correspondent may be referred to the paper of Wharton and Henriksen, published in *THE JOURNAL*, Oct. 31, 1936.

TOXICITY OF SPRAY PAINTING

To the Editor:—In the past month I have had two employees of the furniture company who operate spray varnish machines and who blame the occupation for their complaints. They work under a hood with an exhaust fan but state that it is inefficient and that the varnish has a naphtha base, which is the ingredient that they claim caused the difficulty. The first one had symptoms simulating peptic ulcer and stated that if he stayed away from the vapor he was all right. He refused to have x-ray and gastric analysis done. There was no diarrhea, and physical examination revealed nothing. The second man had a sore throat, which was the ordinary follicular tonsillitis, and I am positive that the fumes had nothing to do with the infection. It cleared without difficulty or sequelae. I have looked through my available literature without finding anything that would lead me to believe that the occupation has anything to do with either case; but I can easily believe that the constant inhalation of such fumes might lead to gastro-intestinal difficulties. Am I correct and what are the symptoms and signs of such intoxication and what systems are most affected? Where might I find additional references to such industrial hazards? Please omit name.

M.D., Pennsylvania.

ANSWER.—All organic solvents are more or less toxic and somewhat anesthetic. Those which have a naphtha base may be less harmful than some of the others, but it is rash to generalize on the subject. Men doing such spraying should be equipped preferably with masks supplied with fresh air under slight pressure. A list of firms supplying such equipment can be had from the United States Bureau of Mines, Pittsburgh.

The toxicology of most of the organic solvents commonly used in paints and varnishes is given under their chemical names in Flury, Ferdinand, and Zangger, Heinrich: *Lehrbuch der Toxicologie für Studium und Praxis*, Berlin, Julius Springer, 1928. See also "Poisoning by Petroleum Distillates" by E. R. Hayhurst, which appeared in *Industrial Medicine*, vol. 5, February 1936.

BRONCHIAL ASTHMA

To the Editor:—In the past two months I have had an unusually large number of patients with bronchial asthma. They have eosinophilia. They have negative skin tests with ragweed. Their attacks occur between September and the end of November. Am I justified in giving these patients a series of ragweed pollen injections? Is it usual that asthma cases do not show the offending agent by the skin test? Please omit name.

M.D., New York.

ANSWER.—This inquiry does not give sufficient data for more than a general answer. No mention is made of symptoms of hay fever preceding the attacks of asthma from September to November. Patients with asthma due to ragweed pollen give a typical history of symptoms of hay fever coming on in mid-August (in the region noted). The attack of asthma usually starts near the end of August and in cases of long standing may persist for a month to several months after the end of pollination. The attacks of asthma may not be preceded by hay fever in some cases of long standing. Occasionally also a patient may develop pollen asthma with no previous history of ever having had hay fever. Skin reactions are present in such a large proportion of pollen sensitive patients that their absence in known pollen sensitive patients has been considered worth recording:

Kern, R. A.: Seasonal (Pollen) Hay Fever with Negative Skin Tests, *Ann. Clin. Med.* 5: 371, 1926.

Kahn, I. S.: Significance of Negative Skin Tests in Pollen Hay Fever and Asthma in Infants and Young Children, *South. M. J.* 21: 559 (July) 1928.

Wilmer, H. B.: Diagnosis and Treatment of the Atypical Types of Hay Fever, *J. Allergy* 1: 87 (Nov.) 1929.

In the presence of a history of seasonal asthma suggestive of pollinosis, the scratch test, if negative, should be followed by intradermal tests with the suspected pollen, a 1:10,000, a 1:1,000 and, if necessary, a 1:100 pollen solution being used for such tests. If these tests are still negative, a conjunctival test (placing the pollen grains on the inside of the lower eyelid) or an intranasal test by insufflation of pollen should be done. If such study still produces negative results, other tests, especially for molds (with special reference to *Alternaria* and *Aspergillus*), should be done. Mold-sensitive patients give a history very similar to the history of those who are pollen sensitive. If all these studies have failed to explain the patients' symptoms, one may then, in patients giving a characteristic history, try the use of ragweeds. As previously mentioned, the percentage of such cases is small.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 29, page 1912.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*, June 21-23 and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given at Philadelphia in June. *Written examination* will be held in different centers of the United States and Canada in October. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF SURGERY: *Part I (written)*, Sept. 20. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral examination*, Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

West Virginia March Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held at Charleston, March 1-3, 1937. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Fifteen candidates were examined, all of whom passed. Twelve physicians were licensed by reciprocity and 3 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine.....	(1935)		89.5
Northwestern University Medical School.....	(1937)		88.8
Rush Medical College.....	(1936)	87.6, 89, 90.2,	90.6
School of Medicine of the Division of the Biological Sciences.....	(1931)		89.7
Louisiana State University Medical Center.....	(1936)		90.2
University of Michigan Medical School.....	(1934)		85.1
Cornell University Medical College.....	(1933)		84
Duke University School of Medicine.....	(1932)		87.2,
(1935) 84.9, 88.8			
University of Cincinnati College of Medicine.....	(1935)		88.9*
Western Reserve University School of Medicine.....	(1935)		91

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia Medical Department.....	(1928)		Georgia
Rush Medical College.....	(1936)		Michigan
University of Louisville School of Medicine.....	(1927), (1933)		Kentucky
Louisiana State University Medical Center.....	(1934)		Louisiana
University of Michigan Medical School.....	(1935)		Penna.
Duke University School of Medicine.....	(1932, 2)		N. Carolina
Western Reserve University School of Medicine.....	(1933)		Ohio
Meharry Medical College.....	(1931)		Tennessee
Medical College of Virginia.....	(1931), (1933)		Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College.....	(1930)	N. B. M. Ex.	
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1933)	N. B. M. Ex.	
Woman's Medical College of Pennsylvania.....	(1931)	N. B. M. Ex.	

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Kentucky Reciprocity Report

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports 15 physicians licensed by reciprocity from Jan. 6 through April 4, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine.....	(1934)		Mississippi
Northwestern University Medical School.....	(1936)		Illinois
University of Louisville School of Medicine.....	(1934)		New Jersey
University of Minnesota Medical School.....	(1933)		Minnesota
Ensworth Medical College, Missouri.....	(1912)		Nebraska

Washington University School of Medicine.....	(1933)		Missouri
Eclectic Medical College, Cincinnati.....	(1914), (1936)		Ohio
Temple University School of Medicine.....	(1932)		Penn.
Tennessee Medical College.....	(1905)		Tennessee
University of Tennessee College of Medicine.....	(1934)		Tennessee
Vanderbilt University School of Medicine.....	(1929)		Tennessee
(1934) Tennessee			
Medical College of Virginia.....	(1934)		Virginia
University of Virginia Department of Medicine.....	(1933)		Virginia

Montana April Report

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held in Helena, April 6-7, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, 3 of whom passed and one failed. Six physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Rush Medical College.....	(1930)		88.1
Vanderbilt University School of Medicine.....	(1933)		79.8
University of Alberta Faculty of Medicine.....	(1936)		81.9

School	FAILED	Year Grad.	Per Cent
University of Edinburgh Faculty of Medicine.....	(1926)		57.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School.....	(1934)		Wyoming
(1936) Oklahoma			
University of Minnesota Medical School.....	(1927)		Minnesota
Creighton University School of Medicine.....	(1921), (1932)		Nebraska
University of Pennsylvania School of Medicine.....	(1927)		N. Carolina

Maine March Examination

Dr. Adam P. Leighton, secretary, State of Maine Board of Registration of Medicine, reports the written examination held in Portland, March 9-10, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventeen candidates were examined, all of whom passed. Two physicians were licensed by reciprocity and 2 physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
George.....	(1935)		80
Rush.....	(1936)		81
Boston.....	(1936)		85
Harvar.....	(1936)		84
Tufts.....	(1936)	84, 84, 85	
Hahne.....	(1936)		88
McGill.....	(1936)		82
Nation.....	(1934)		77*
Regia.....			
cina e Chirurgia.....	(1934)		80

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Jefferson Medical College of Philadelphia.....	(1934)		Penna.
University of Vermont College of Medicine.....	(1924)		Vermont

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine.....	(1934)	N. B. M. Ex.	
Johns Hopkins University School of Medicine.....	(1932)	N. B. M. Ex.	

* Verification of graduation in process.

Rhode Island January Examination

Mr. Robert D. Wholey, chief, Division of Examiners, reports the oral, written and practical examination held by the Board of Examiners in Medicine at Providence, Jan. 7-8, 1937. The examination covered 20 subjects and included 50 questions. An average of 80 per cent was required to pass. Ten candidates were examined, 7 of whom passed and 3 failed. Two physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Harvard University Medical School.....	(1934)		81
Cornell University Medical College.....	(1917) 80, (1935)		85
Syracuse University College of Medicine.....	(1929)		84
New York University, University and Bellevue Hospital Medical College.....	(1933)		81
Hahnemann Medical College and Hosp. of Philadelphia.....	(1935)		85
Jefferson Medical College of Philadelphia.....	(1935)		81

School	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine.....	(1934) 52, (1935)		63
Tufts College Medical School.....	(1932)		62

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Boston University School of Medicine.....	(1934)	N. B. M. Ex.	
University of Rochester School of Medicine.....	(1934)	N. B. M. Ex.	

Book Notices

A Textbook of Medicine. By Charles Phillips Emerson, M.D., Research Professor of Medicine, Indiana University. Cloth. Price, \$8. Pp. 1,296. Philadelphia, London & Montreal: J. B. Lippincott Company, 1936.

The purposes of this new textbook are outlined in the preface by the author. The aim is to present internal medicine in terms of the clinical pictures of diseases, explaining these by the fundamental facts of pathology, biochemistry and other fields. The symptoms, therefore, are related so far as possible to disturbances of fundamental nature. The author believes that the history of some diseases is important in understanding them as well as being matters of interest, and hence he includes several short biographies of men important to medical progress. Each disease syndrome is presented as a defense mechanism. It is either the result of a struggle between the patient's body and invading germs or the expression of an attempt of the various organs to function efficiently in spite of lesions or dysfunctions. This task is quite unenviable. Nevertheless the degree of success obtained is noteworthy. Naturally it was impossible to discuss any of the diseases or disorders completely. The relative space assigned to each subject, however, is exceptionally well chosen. Classification of the diseases naturally is difficult and in this instance has resulted in some faults of arrangement which should be remedied in subsequent editions. Thus food infections are considered under both specific infectious diseases and diseases due to drugs and poisons. Lobar pneumonia is placed under specific infectious diseases, while acute pleurisy is placed with diseases of the organs of respiration. Omissions are remarkably few. Little controversial material is found, although some workers in the field would differ with the author's statement in his section on gout that "the determination of the uric acid of the blood and urine aids but little in this diagnosis, since both may lie within normal limits." One may safely say that this textbook is as satisfactory as it is possible for any one man to achieve today. The index is exceptionally good and evidently has received a great deal of attention, as can be judged by its eighty-five page length.

An Introduction to Comparative Biochemistry. By Ernest Baldwin, B.A., Ph.D., University Demonstrator in Biochemistry, Cambridge. With a foreword by Sir Frederick Gowland Hopkins, F.R.S. Cloth. Price, \$1.50. Pp. 112, with 11 illustrations. New York: Macmillan Company; Cambridge: University Press, 1937.

Baldwin has written the first textbook on the evolution of animals from a chemical point of view. It is a lucid work. Perhaps the part of most interest to physiologists and physicians is that on water balance and kidney action. By tracing the entire evolution of the kidneys, the subject is a great deal more intelligible than it would be if taken up merely from the standpoint of the mammalian kidney. The simplest kidney action is merely the pumping out from the body of water containing waste products, and this water is then replaced by osmosis. The first difficulty arises in adaptation to fresh water in which there is not enough salt in the incoming water, and work has to be performed by the kidney in pumping out a hypotonic urine. After the filtrate of the blood passes out of the glomerulus or a similar organ, a salt-absorbing segment is added. The adaptation to a dry condition has led to the abolition of the glomerulus in marine bony fish, snakes and lizards and to the development of the loop of Henle in birds and mammals. The passage of embryonic and larval stages inside an egg shell or uterus is an adaptation to fresh water and land conditions for the preservation of the salts. Protein metabolism is affected by a scarcity of water, aquatic animals starting out with ammonia as a form of excretory nitrogen, requiring a great deal of water for its dilution to diminish its toxicity. The development of urea is to detoxify ammonia, but this also requires some water for its excretion. Uric acid can be excreted in the solid form and thus conserve water. Baldwin accepts the arginase theory of urea formation and concludes that uric acid arises only from other purines and not from urea. On the other hand, uric acid may be broken down into urea through the intermediate stage of allantoin. He states that smooth, striated and heart muscle of all animals contains phos-

phagen, although this is phosphocreatine in the higher animals and phospho-arginine in the lower animals. Hemoglobin and other respiratory pigments are considered adaptations to lack of oxygen, the wide distribution of hemoglobin being due to its having the same prosthetic group as cytochrome, which is universally present. Hemocyanin, on account of having a lower loading tension for oxygen, is advantageous to animals in passing from water to a land habitat; but, once that habitat is established, hemoglobin is the more efficient. He notices that the blood pigment is kept in the blood vessels by high molecular weight or confinement in the corpuscles, that dissolved in the plasma having molecular weights of about 2,000,000. He considers cytochrome and the yellow respiratory enzyme of Warburg, the latter not requiring a cyanide sensitive oxidase for its action. He mentions the fact that methylene blue as a carrier of oxygen increases the rate of respiration. So does the natural bacterial pigment pyocyanin, and also hallachrome and echinochrome. The theory of Raper of melanin formation is accepted and hallachrome, a red pigment of worms, is considered an intermediate. The book seems remarkably free from errors, the only one noted being that the salt content of the Great Salt Lake is given as 10,000 times too small. Perhaps the best section of the book is the foreword by Sir F. Gowland Hopkins, in which he says "I venture to think that productive thought in biochemistry in particular calls for the widest possible survey of life's manifestations." Some of the pioneers in medicine have been leaders in botanic investigations also, and even today a wide range of interest is conducive to contributions to knowledge.

Festschrift zum 80. Geburtstag von Hofrat Prof. Dr. Hans Molisch. [Sonderband zu Mikrochemie Band XXI.] Paper. Price, 28 marks. Pp. 454, with 82 illustrations. Vienna & Leipzig: Emil Halm & Co., 1936.

As a special mark of esteem on his eightieth birthday, friends and pupils of Professor Molisch joined in honoring the Nestor of applied microchemistry by dedicating to him the results of some of their work, which was inspired by his teaching. Emil Halm, the publisher, founder and ever ready financial sponsor of *Microchemie*, and the editors, A. A. Benedetti-Pichler, Emich, Friedrich, the late Pregl, Lieb, Lindner, Koffer and Niederl, are to be thanked for their effort in issuing anniversary volumes at intervals in honor of the distinguished pioneers of microchemistry. Microchemistry is Austria's distinct contribution to chemistry. Without it, modern research in biologic chemistry and experimental medicine could not have progressed so rapidly. The journal *Microchemie* is indispensable to every biochemical worker, as it contains the minute details of procedures in microchemical investigations. It is impossible in this brief review to give due credit individually to each scholarly contribution in the Molisch festschrift. However, the article by A. A. Benedetti-Pichler and W. F. Spikes on "Studies in Qualitative Separations on a Micro-Scale" deserves special emphasis, as the authors describe a procedure long needed for basic qualitative micro-analysis. It is hoped that in the future America may make its contribution, perhaps, by erecting a microchemistry institute that may serve as a center for Americans who are unable to study abroad. Possibly some of the pupils of these illustrious teachers—Emich, Donau, Lieb, Pregl and Feigl—might carry on their work here. May Professor Molisch live to see this day and, together with Emich, dedicate such an institution for the benefit of humanity.

The Pharmaceutical Recipe Book (R. B. 11). By Authority of the American Pharmaceutical Association. Prepared by the Committees on Recipe Book and on Unofficial Formulas of the American Pharmaceutical Association. Second edition. Cloth. Pp. 529. Washington, D. C.: American Pharmaceutical Association, 1936.

As stated in the preface, the Recipe Book represents the outcome of an effort of the American Pharmaceutical Association to place in the hands of the practicing pharmacist a reliable and comprehensive book of recipes applicable to his business. The volume is divided into several parts relative to different types of formulas: part 1, pharmaceutical; 2, flavoring extracts; 3, dental; 4, chiropodologic; 5, veterinary; 6, photographic; 7, cosmetic; 8, technical and miscellaneous; 9, laboratory reagents; 10, schedule of antidotes for poisons; 11, average doses of

unofficial drugs, and 12, table of solubilities. The type and typography of the book resemble the U. S. Pharmacopeia XI and the National Formulary VI, somewhat tending to lend an official air. There are nearly 2,000 formulas covering the unofficial ones commonly used in the drug store, the hospital and the laboratory; also many that are frequently used about the boudoir, the household and the workshop. As far as the value of the volume to the physician is concerned, it is more serviceable in indicating relics of the past than present day progress. The book is an advancement over the usual formulary describing polypharmaceutic mixtures or imitations—"patent medicines"—heretofore exploited by certain publishers. The volume is to be commended, however, in that it does not advance any claims for remedial action or assume any responsibility for the therapeutic values of any of the formulas or specify dosage.

Applied Physiology. By Samson Wright, M.D., F.R.C.P., John Astor Professor of Physiology, University of London, Middlesex Hospital Medical School. Sixth edition. Cloth. Price, \$6. Pp. 686, with 282 illustrations. New York & London: Oxford University Press, 1936.

A record of six editions in ten years would seem to indicate that this book has found a most useful place in its field. The present edition provides new considerations, particularly in relationship to cerebral localization, reflexes, speech, metabolism and the glands. The author expresses his special appreciation to the series on glandular physiology and therapy published in *THE JOURNAL*. He has, moreover, added extensively to the methods and technics that are described in the work as these have been brought out in current periodical literature. Attention is called to nineteen new illustrations and to the redrawing of many of the older illustrations in order to make them more illustrative. The author has also borrowed freely from well established textbooks in related fields to improve the quality of his excellent work. In his table of contents he indicates in italic those sections of the work which are particularly of clinical interest, thus enabling the practitioner who wishes to bring himself down to date to read readily those portions of the work which concern him. More and more the practice of internal medicine and of surgery is coming to ground itself in physiology. The title of this book indicates its practical service as a liaison volume between the basic sciences and the practice of medicine. Its numerous prompt revisions indicate its timeliness and its dependability.

Clinical Laboratory Diagnosis. By Samuel A. Levinson, M.S., M.D., Director of Laboratories, Research and Educational Hospitals, Chicago, and Robert P. MacFate, Ch.E., M.S., Assistant Director of Laboratories, Research and Educational Hospitals, Chicago. Cloth. Price, \$9.50. Pp. 877, with 157 illustrations. Philadelphia: Lea & Febiger, 1937.

As time moves on, the teachers of a previous period and the textbooks which represented their technics of pedagogy are replaced by a new generation and a new series of volumes. It is occasionally possible for a modern reviser to build on the foundations of the past. Levinson and MacFate have, however, chosen to present an entirely new work based on the outlines which they distribute to their own students at the University of Illinois College of Medicine. They have thought it wise to include enough data in the fundamental fields of anatomy, physiology, biochemistry and clinical medicine to provide the student with a rational approach to laboratory technic. In most instances they supply the approved technic without attempting to list all of the various methods that are available. For their hematology they are indebted largely to Dr. Jaffé of the Cook County Hospital, and for their pediatric procedures to Dr. H. G. Poncher. Likewise their section on legal medicine and toxicology is an outgrowth of the work carried on by the coroner's toxicologist, Muehlberger. The volume is systematically arranged, considering first the tests involved in the gastrointestinal tract from the mouth to the rectum. It follows with metabolism, blood and urine, hematology, immunology, spinal fluid bacteriology, skin tests and then the special topics that have been mentioned. The book is beautifully printed, its outlined character fully apparent by the nature of the headings that are used on individual chapters, paragraphs and similar subdivisions. The illustrations are profuse and chosen obviously with a desire to be of the greatest possible helpfulness. There

are a considerable number of plates, some of them in color. An efficient index forty pages in length concludes the work. It may be unqualifiedly recommended to physicians and students as a succinct, authoritative and useful laboratory guide.

Om Amylasen i Blod og Urin: Dens Udskillelse gennem Nyrerne. Af Gregers Nørby. Paper. Pp. 148, with 29 illustrations. Copenhagen: Levin & Munksgaard, 1935.

The author gives a discussion of the methods for determination of amylase, their application to blood and urine and the errors involved. In determining the amylase of the blood, the author found that it was all contained in the plasma, none being present in the corpuscles. Although the amylase of the plasma was rather constant from day to day in the individual case, rather wide differences were found between different individuals. The stability of amylase in the urine was studied and it was found that at temperatures under 40 C. and at a pH from 5.0 to 9.0 the specimens retained their amylase content rather well. The excretion of amylase in the urine was found to be proportional to the concentration in the serum. The author also studied the excretion of creatinine, using a Pulfrich "stufenfotometer" for its determination. The excretion per unit of time was found to be a linear function of the concentration of creatinine in the serum. The excretion of amylase and of creatinine seemed to be independent of each other. Because of the exhaustive discussion of methods for the determination of amylase and of creatinine, this monograph should prove of value to all interested in the subject.

Relief and Health Problems of a Selected Group of Non-Family Men. By Glenn H. Johnson, Research Assistant, School of Social Service Administration, University of Chicago. University of Chicago Social Service Monographs. Paper. Price, 50 cents. Pp. 81, with illustrations. Chicago: University of Chicago Press, 1937.

One hundred and forty-four men whose only identifying factor common to all is that they are not living with families of their own are studied. Half of them had lived in Cook County for twenty-six years or more, while only eight had less than ten years' residence. Only twenty of these men had been known to any case work agency, so that they were in general a self-supporting group until economic conditions or some temporary or chronic illness brought them to a relief office. The conditions of housing were extremely poor, only sixty-three having sleeping quarters that could be characterized as good. Yet there was a tendency to cling tenaciously to a freedom of choice of those things which are personal and intimate. Only fourteen were without some physical or mental health complaint. Special housing provisions and convalescent homes are needed for the care of this class. Although a majority were poorly educated, there were ten high school and four college graduates; seventy-five were rated as employable. The report recommends the abolition of "shelters" and characterizes the "family responsibility" requirements of the Illinois Pauper Law as a retrogressive public policy. Invalidity pensions are also recommended. Existing relief programs are declared to be inadequate to meet the needs of this class.

Einführung in die pathologische Physiologie. Von Professor Dr. Max Bürger, Direktor der medizinischen Universitäts-Poliklinik, Bonn a. Rh. Second edition of "Die pathologisch-physiologische Propädeutik." Paper. Price, 24 marks. Pp. 454, with 43 illustrations. Berlin: Julius Springer, 1936.

This distinctive and carefully written book covers the general field of abnormal or applied physiology and is therefore of special interest to third and fourth year medical students. In addition, however, it should interest all those who are endeavoring to improve the practice of medicine in the matter of accurate diagnosis and rational treatment. It is written by a clinician who for years has lectured to students on this subject and who draws on an extraordinary repertory of physiologic and biochemical information. In his introduction Bürger points out the fallacies of the old "organ diagnosis" in internal medicine and emphasizes the interdependence of the various parts of the body. While this idea is gaining ground in medicine, its implications still require emphasis, and the book abounds in excellent illustrations of it (e. g., psoriasis, p. 320). More discrimination is needed in the ordering of such things as "strict bed rest" and "hot dressings." This book deserves careful reading and a translation into English.

The Social Workers' Dictionary. General Editors: Erle Fiske Young, Ph.D., and Bessie Avene McClenahan, Ph.D., The School of Social Work, The University of Southern California. Editor for Social-Legal Terms: Pauline V. Young, Ph.D., The School of Government, The University of Southern California. Paper. Price, 75 cents. Pp. 71. Los Angeles: Social Work Technique, 1936.

This pamphlet indicates the manner in which the field of social service has gradually developed not only a new profession but also a new language for that profession. The social service worker must obviously be acquainted not only with the language of medicine and of the hospital but also with the terms used by patients in discussing their illnesses, their manner of living and their ability to pay. The authors of this book have carefully compiled most of the difficult terms that are likely to arise in such discussions and their definitions are exceedingly apt. The book is hardly one that will be useful for the physician but no doubt the rapid growth of social service, including the incorporation into the midst of this profession of some 200,000 amateurs, indicates the need for such a book.

Lysozyme. Typhoid Fever. Diphtheria. Rheumatism. Ukrainian Metchnikoff Institute, Symposium of the Institute's Works. Paper. Price, \$1. Pp. 322, with illustrations. Kharkov: The Institute, 1936.

This book deals with the results of investigations at the Metchnikoff Institute of Kharkov under the direction of M. Melnik. There are four main topics: lysozyme, the stable substance discovered by Fleming in 1922 in various products and tissues of the animal body, which in neutral or slightly alkaline medium dissolves various bacteria, saprophytic as well as pathogenic; single immunization against typhoid by injecting vaccine and culture filtrate of typhoid bacilli with alum, thus producing an antigenic depot; single immunization against diphtheria with alum precipitated toxoid; streptococcic allergy and rheumatism. The parts dealing with lysozyme and anti-diphtheria immunization are in English, the two other parts in French. The book is well printed on substantial paper. Its contents will interest those who are concerned with the topics discussed.

Wide Is the Gate. By Loyd Thompson. Cloth. Price, \$2. Pp. 320. New York: Macaulay Company, 1937.

Here in a fictional form is an accumulation of information concerning the methods of charlatanism, particularly as practiced in the United States, from the least of these to John R. Brinkley. Informed readers will recognize in many of the descriptions the actual record of Brinkley himself. While the author lacks the sure fictional touch of the experienced story writer, his volume includes sufficient drama to sustain the factual data that are incorporated in the story. It may be doubtful that the general reader will find the book as fascinating as will the medical reader, but either will derive from it much that is informative and at least a considerable amount of material that is interesting.

Vocational Guidance Throughout the World: A Comparative Survey. By Franklin J. Keller, Principal, Metropolitan Vocational High School, New York City, and Morris S. Vitels, Associate Professor of Psychology, University of Pennsylvania. Cloth. Price, \$4. Pp. 575, with illustrations. New York: W. W. Norton & Company, Inc., 1937.

Vocational guidance has become in recent years a subject of general as well as professional study. The book under consideration, which is principally a comparative survey of vocational guidance throughout the world, can be read with profit by those lacking in technical training in the field as well as by those professionally concerned. Vocational guidance in other countries is discussed against the background of existing conditions in the United States. Each country is introduced with a brief description of that social, political and economic background which is essential in understanding the formulation of vocational guidance policies and methods. These introductions are moderate in tone and sympathetic in point of view. It is refreshing to find that this holds true for fascist, communist and democratic countries alike. Much is thus added to the understanding of the ensuing material. Two chapters, on psychologic methods in vocational guidance and psychologic methods for the analysis of the individual, are placed in the middle of the book between the discussion of Switzerland and that of Italy. The reason for inserting these chapters in this

portion of the book seems somewhat obscure. An appendix containing samples of general record forms, questionnaires, certain psychologic tests, medical contraindications and miscellaneous material is included. The book is so written that it will serve to interest the layman with only a casual knowledge of the field as well as those more professionally involved, for whom it would seem to be indispensable.

Meditsinskaya literatura USSR: Sistematicheskiy ukazatel knig i zhurnalnykh statey 1933. God izdaniya tretiy. [Medical Literature of Russia: Systematic Index of Books and Articles for 1933. Third Year of Issue.] Cloth. Price, 20 rubles, 6 kopecks. Pp. 294. Moscow & Leningrad: Gosudarstvennoe izdatelstvo biologicheskoy i meditsinskoy literatury, 1936.

The present volume is an index of biologic and medical literature published in the Soviet Union for the year 1933. The Bureau of the All-Union Institute of Experimental Medicine for publishing medical bibliography has decided to utilize bibliographic material collected by Dr. A. E. Molotkov and covering the Russian medical literature from the sixteenth century to 1929. The plan is much like that of the *Index Medicus*, with its general subdivisions, an index of the authors and subject index, with the difference, however, that a brief subject content is appended to each reference. The text is in Russian only, making the material largely inaccessible except to those familiar with the language.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Fracture of Hip; Migration of Bone Peg Into Bladder.—In October 1933 the plaintiff sustained an intracapsular fracture of her left femur, and the defendant, an orthopedic surgeon, performed an operation to reduce the fracture, inserting a bone peg about 5 inches long and approximately five-sixteenths of an inch in circumference to hold the fragments in apposition. An infection later developed in the hip, and drainage was instituted. Shortly thereafter, the plaintiff's abdomen became distended and she suffered intense pain. The distention disappeared under the family physician's treatment in a few weeks. At various times during the next three or four months the plaintiff experienced "bleeding of the bladder" and suffered from frequent and painful urination. Urinalysis showed the urine to be alkaline and to contain blood and pus. During this time the defendant continued to treat only the fracture, but at the time of each visit he also examined the plaintiff's abdomen and observed her general condition. As to the abdominal condition, he acted only in an advisory capacity, leaving the treatment of that condition to the family physician. Finally, in April 1934 a urologist was called who caused roentgenograms to be made, disclosing that the bone peg had migrated into the bladder. According to the record, the peg was lodged completely within the bladder and its point of entry had become walled off by proliferative tissue.¹ Following an operation to remove the peg a complete recovery ensued. The patient then sued the defendant and from a directed verdict for the defendant she appealed to the Court of Appeals of Kentucky.

The plaintiff, while admitting that the fortuitous lodging of the bone peg in the bladder was not due to any fault of the defendant, claimed that he was negligent in failing to discover sooner that the peg had migrated. There was medical testimony to the effect that, even if the migration of the peg had been detected earlier, it would have been inadvisable to remove it until it had become free of the femur or, if it had entered the bladder, until it had become walled off in order to prevent extravasation of urine and the setting up of a lethal sepsis. The defendant, called as a witness by the plaintiff, testified that any examination of the patient, other than the type he made, would have been to her detriment rather than to her benefit, that it was inadvisable to disturb the patient on

1. Grant, Owsley: An Unusual Foreign Body (Bone Peg) in the Bladder, J. A. M. A. 107: 1632 (Nov. 14) 1936.

account of the condition of her hip and because of her excitability. He further testified that although he discovered in January 1934 that the peg was no longer in the bone, he was justified in presuming that the migration would be outward, not inward, because, as he testified, "there is no case on record where any ever worked in." He would not have been justified, he said, in moving the patient, jeopardizing the union that had already taken place, in order to take a roentgenogram to discover something that had never been known to happen before.

The location of the peg in the tissues, said the Court of Appeals, before it entered the bladder as well as after it completed its tour, could have been detected by a roentgen examination. The fractured hip and its cure were, however, of first importance. As long as the abdominal condition was not obviously impairing the plaintiff's health or life, it was the defendant's duty to allow the family physician's treatment thereof to be continued until a roentgen examination could have been made and an operation performed to relieve the abdominal condition without interfering with the healing of the fracture. At the time when the peg was in the femur or was passing into the bladder, and not entirely within it, an operation to remove it was not only inadvisable but perilous to the patient's fractured hip and to her health and life. If the defendant, therefore, by a roentgen examination or otherwise, had sooner located the peg, such discovery would not have justified its removal nor would such examination have alleviated the pains suffered by the patient. The fact that a sedative had never been needed to relieve the patient's pain tended to establish, the court thought, the soundness of the defendant's judgment not to sacrifice the treatment and cure of the fractured hip in order sooner to discover the cause of those pains.

Negligence on the part of a physician cannot be presumed from evidence merely of pain and suffering, of failure to effect a cure or to obtain the result expected by the patient, of poor or bad results, of bad judgment, or of the presence of infection. The doctrine of *res ipsa loquitur* has no application. The physical appearance of a patient following a physician's treatment and the patient's declarations with respect to the existence or severity of pain may be proved by lay testimony; whether or not the negligence of the physician was the primary cause thereof must be established by expert testimony. Where expert testimony discloses nothing more than an error of judgment, the physician is not guilty of malpractice. In the present case, the court concluded that the plaintiff had failed to prove that the defendant had left undone something that he should have done or that he had done something that he should not have done. Accordingly, the court affirmed the judgment for the defendant.—*Meador v. Arnold* (Ky.), 94 S. W. (2d) 626.

Malpractice: Alleged Puncture of Common Bile Duct During Removal of Gallbladder.—The plaintiff in 1931 suffered from a "gallbladder attack." A second attack occurred in July 1932 and a third late in December of that year. The defendant-physicians attended the plaintiff, and roentgenograms taken in August 1932 and in January 1933 showed the presence of gallstones in the gallbladder. An operation was performed by the defendants June 6, 1933, and the gallbladder removed. During this operation, it was contended, a probe was inserted through the walls of the common duct and that thereafter bile escaped into the abdominal cavity, resulting in the subsequent illness of the plaintiff. The trial court, in a malpractice suit instituted by the plaintiff, directed a verdict for the defendants. The plaintiff died during the pendency of her motion for a new trial, and the administratrix of her estate was substituted as party plaintiff. The motion for a new trial was denied and the administratrix appealed to the Supreme Court of Minnesota.

Concededly, said the Supreme Court, the defendants were qualified and experienced physicians and surgeons in good standing and possessed at least the average skill of physicians and surgeons practicing in their community. While a physician is not an insurer of a cure or good results, he is required to possess the skill and learning possessed by the average member of his school of the profession in good standing in his locality and is required to apply that skill and learning with due care. Two medical experts testified for the plaintiff but neither stated that a puncture or opening was made in the common duct by

the defendants during the operation for the removal of the gallbladder. Neither expressed an opinion as to whether the ailments and complications suffered by the plaintiff following the operation resulted from an operative puncture of the wall of the common duct or from a failure of the defendants to exercise proper care and skill as surgeons. One of these witnesses testified that in his opinion the plaintiff's condition was due to infection of the biliary tract and that such conditions result "time and again" in cases in which the operating surgeon has exercised all due care and skill, and that the plaintiff's condition was not indicative of any lack of skill or want of care on the part of the operating surgeons. The other witness testified that the plaintiff's condition indicated gallbladder disease and possible infection in the biliary tract prior to the date of the operation and that there was some chronic inflammation in the gallbladder beginning as early as 1931, when the plaintiff experienced her first attack. Both experts agreed that a gallbladder operation was serious and sometimes results in complications or death in spite of the exercise of the best skill and care on the part of the operating surgeon. The evidence as a whole, in the opinion of the court, was insufficient to sustain a finding that the infection was caused by any failure of the defendants to exercise the care and skill required of them.

In malpractice cases, proof of causal connection between the injury and the alleged neglect of the physician must be something more than consistent with the plaintiff's theory of how the claimed injury was caused. The burden is on the plaintiff to show that it is more probable that the harm resulted from some negligence for which the defendant-physician was responsible than in consequence of something for which he was not responsible. No presumption of negligence arises from the fact that an operation or treatment by a surgeon or physician does not result in a cure. The doctrine of *res ipsa loquitur* is not applicable. The plaintiff having failed to meet the burden of proof imposed on her, the trial court did not, in the opinion of the Supreme Court, err in directing a verdict for the defendants.—*Yates v. Gamble* (Minn.), 268 N. W. 670.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 7. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Heart Association, Atlantic City, N. J., June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Allergy, Atlantic City, N. J., June 7-8. Dr. Warren T. Vaughan, 201 West Franklin St., Richmond, Va., Secretary.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Releah Gardner, 22 Arsenal St., Portland, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Montana Medical Association of, Great Falls, July 13-14. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-12. Dr. C. W. Countryman, 497 Riverside Ave., Spokane, Wash., Secretary.
- Rocky Mountain Conference, Denver, July 19-21. Mr. Harriet T. Sethman, 1612 Tremont Place, Denver, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

13: 257-386 (March) 1937

- *Vascular Complications of Polycythemia. I. L. Norman and E. V. Allen, Rochester, Minn.—p. 257.
Significance of Blood Vessels in Human Heart Valves. L. Gross, New York.—p. 275.
Studies in Cardiovascular Syphilis: I. Teleroentgenography in Diagnosis of Early Syphilitic Aortitis: Comparison of Findings in 1,000 Syphilitic and 600 Nonsyphilitic Individuals. J. E. Kemp and K. D. Cochems, Chicago.—p. 297.
Electrocardiogram in Hypertension, with Especial Reference to Lead IV. C. L. C. van Nieuwenhuizen and H. A. P. Hartog, Utrecht, Netherlands.—p. 308.
Coronary Thrombosis: Investigation of Heart Failure and Other Factors in Its Course and Prognosis. A. M. Master, S. Dack and H. L. Jaffe, New York.—p. 330.
Trigonoidation of Semilunar Valves and Its Relationship to Certain Basal Systolic Murmurs. D. R. Chisholm, Honolulu, Hawaii.—p. 362.

Vascular Complications of Polycythemia.—About one third of the ninety-eight patients with polycythemia vera that were observed at the Mayo Clinic from January 1929 to 1936 had vascular complications, which Norman and Allen state indicates that polycythemia was responsible for the vascular diseases in most instances since the latter affect a much smaller proportion than one third of all patients of similar ages and sex. Moreover, this hypothesis is logical, as the conditions in the blood are those which produce an increased tendency to thrombosis. The situation is not so clear in relative polycythemia, in which the disturbances in the blood are frequently minimal. It is probable that the changed status of the blood is not responsible for the vascular lesions in the majority of cases of relative polycythemia. For example, polycythemia is rare in thrombo-angiitis obliterans. Naturally, the fundamental disturbance may, in some obscure manner, produce thrombo-angiitis obliterans and relative polycythemia. These observations regarding thrombo-angiitis obliterans apply to arteriosclerosis obliterans, and with less certainty to erythromelalgia and vasospastic neurosis. Phlebitis and cerebrovascular hemorrhage or thrombosis may have resulted directly from polycythemia, but the authors have no evidence that this is so. It is advisable to treat polycythemia vera if for no other reason than to prevent vascular complications. If the many vascular diseases are viewed with the suspicion that polycythemia vera exists, it will be found in at least a small percentage of cases. It appears that arteriosclerosis obliterans and thrombo-angiitis obliterans respond in a better manner to treatment if polycythemia which may be present is treated actively.

American Journal of Medical Technology, Detroit

3: 34-68 (March) 1937

- *Laboratory Recognition of Monilia. Ann Snow, Little Rock, Ark.—p. 34.
Hemologic Observations on Anemias and Leukemias: III. Blood Patterns in Anemia Due to Hemorrhage. E. A. Sharp and E. M. Schleicher, Detroit.—p. 40.
Folin Berglund Method for Quantitative Determination of Glucose in Urine. Bernice Elliott, Omaha.—p. 49.
Heritage of Clinical Laboratory. Vivian Herrick, University, Ala.—p. 53.

Laboratory Recognition of Monilia.—Snow points out that, besides the fact that Monilia may be associated with a variety of disease processes, some organisms of this group may be found in the throat, mouth and intestine of healthy individuals. Moreover, laboratory contamination by Monilia may occur. Therefore it is advisable to make repeated examination of pathologic material in order to make sure that the parasites can be found more than once. This will strengthen the assumption that the organisms are present in the lesion. In an

examination of sputum for bronchomoniliasis, for example, contamination from the mouth must be eliminated as far as possible. Early diagnoses are important, as it is possible for the parasite to invade the blood stream with the production of metastatic abscesses. The fact that the practitioner sometimes confuses a membrane caused by a monilia with a diphtheritic membrane also emphasizes the necessity for the laboratory technician to have a well defined knowledge of this organism. The isolation and identification procedures applicable to the study of Monilia are generally tedious and slow. Not only is it necessary to consider such morphologic features as spore formation, size and appearance of mycelium, size, shape and location of moniliform clusters, but also there should be correlation with the fermentation tests.

American J. Obstetrics and Gynecology, St. Louis

33: 547-728 (April) 1937. Partial Index

- Anatomic Description of Case of Marginal Placenta Praevia: Discussion of Etiologic Implications. D. G. Morton, San Francisco.—p. 547.
Ventrosuspension of Uterus with Living Sutures: Preliminary Report. E. M. Hodgkins, Boston.—p. 559.
Report on Radiation Treatment of Cancer of Corpus and Cervix Uteri from the Brooklyn Hospital. W. S. Smith, Brooklyn.—p. 596.
Oral Paraldehyde Administration in Obstetrics: Supplementing Pentobarbital and Pantopon as an Analgesic and Amnesic in Labor: Preliminary Report of Fifty Cases. L. H. Douglass and F. W. Peyton, Baltimore.—p. 604.
Primiparous Internal Genitalia After Forceps Delivery: Follow-Up Study of Cervical Lacerations and Malposition. F. B. Nugent, Reading, Pa.—p. 611.
*Suprarenal Cortex Therapy in Vomiting of Pregnancy: II. Results in Seventy-Eight Cases. W. Freeman, J. M. Melick and D. K. McClusky, Worcester, Mass.—p. 618.
Diagnostic Value of X-Ray in Placenta Praevia. S. C. Hall, F. W. Currin, Brooklyn, and J. F. Lynch, Burlington, Vt.—p. 625.
Acute Edema of Cervix in Pregnancy and Labor. W. F. Seeley, Detroit.—p. 631.
Pituitary Radiation for Relief of Menopause Symptoms. S. H. Geist and M. Mintz, New York.—p. 643.
Granulosa Cell Tumor Without Uterine Bleeding. W. B. P. McDonough, Brooklyn.—p. 657.
Peripheral Gangrene Following Pregnancy. J. L. O'Leary, Brooklyn.—p. 662.
Sickle Cell Anemia with Pregnancy. A. W. Lewis Jr., St. Augustine, Fla.—p. 667.
Cyclic Phenomena Associated with Menstruation, Early Pregnancy and Induced Abortion in Healthy Woman. C. G. Hartman, Baltimore, and R. Squier, New York.—p. 690.
Elliott Treatment as Prophylaxis for Gonorrhea in the Female. G. A. Williams, Atlanta, Ga.—p. 694.

Adrenal Cortex Therapy in Vomiting of Pregnancy.—Freeman and his associates treated seventy-eight pregnant women for nausea and vomiting with adrenal cortex after the remedies commonly used for this condition failed. The less severe cases of nausea and vomiting were treated exclusively with tablets; the more severe cases were treated at first with parenteral injections. Of the forty-seven treated patients with less severe nausea and vomiting, only two failed to receive any benefit. There were fifteen patients who had severe nausea and vomiting and sixteen patients who were classed as having pernicious vomiting. A cure was effected with the parenteral treatment in every instance within from three to five days. It is important to note that in no instance did the condition of nausea and vomiting become more severe, necessitating the interruption of pregnancy. In the more severe cases of nausea and vomiting, the body fluids and vitamins were replaced as rapidly as possible. In patients in whom the ketosis did not clear as rapidly as the clinical symptoms, insulin was added to the intravenous medication. No contraindications of the use of adrenal cortex have been encountered. The patients, who were merely nauseated or who vomited but rarely or at regular intervals, were told to take one tablet (0.2 Gm.) three times a day, about one-half hour before their regular meal. If at the end of a week their symptoms had not completely ceased, the dose was increased up to six tablets a day. For patients who vomited at irregular intervals or who vomited everything taken by mouth the contents of one ampule (1 cc.) of adrenal cortex were injected three times a day, about one-half hour before mealtime. The injections were continued for three days after the disappearance of all signs of vomiting; then one ampule was replaced by one tablet on each successive day, so that by the end of the sixth day after cessation of vomiting the patient was receiving three tablets a day and no injections. The tablets were then continued until 100 had been taken.

American Review of Tuberculosis, New York

35: 411-596 (April) 1937

- Thoracoplasty with Lung Mobilization: Part I. First-Stage Operation. R. H. Overholt, Boston.—p. 411.
- Id.: Part II. Second-Stage and Subsequent-Stage Operations. R. H. Overholt, Boston.—p. 430.
- Review of 200 Consecutive Thoracoplasties. R. G. Urquhart, Norwich, Conn.—p. 443.
- Complications of Successful Thoracoplasties. A. H. Aufses, New York.—p. 464.
- Phrenic Interruption Combined with Artificial Pneumothorax for Pulmonary Tuberculosis. F. R. Harper, Tucson, Ariz.—p. 475.
- Selective Collapse in Artificial Pneumothorax: Consideration of Its Development. R. T. Ellison, Chestnut Hill, Pa.—p. 484.
- Review of 100 Reexpanded Cases of Artificial Pneumothorax. E. P. Eglee and O. R. Jones, New York.—p. 500.
- Frequency of Artificial Pneumothorax Refills in Tuberculosis: Preliminary Report. R. M. Franklin, W. A. Zavod and H. E. Perez, Valhalla, N. Y.—p. 513.
- *Emphysema of Artificial Pneumothorax Lung: Vesicular, Subpleural, Interfascial. E. Korol, Lincoln, Neb.—p. 530.
- Emphysema Complicating Artificial Pneumothorax. F. Y. Leaver and R. M. Hardaway, Denver.—p. 538.
- Tuberculous Effusions Complicating Artificial Pneumothorax. B. L. Brock, A. B. Mullen and T. A. Woodson, Waverly Hills, Ky.—p. 548.
- Use of Graphic Records in Artificial Pneumothorax. B. Gordon, Philadelphia.—p. 561.
- New Artificial Pneumothorax Apparatus. S. Hirsch, New York.—p. 570.
- An Hour-Glass Artificial Pneumothorax Apparatus. M. S. Lloyd, New York.—p. 572.
- Surgery of the Tuberculous Belongs to the Sanatorium. E. L. Ross, Ninette, Manit.—p. 575.
- Necessity of Bronchoscope in Modern Chest Work. M. G. Buckles, Waverly Hills, Ky.—p. 581.
- Bronchography with Iodized Oil Not Without Danger: Report of Case. L. Schneider and J. Segal, New York.—p. 590.

Emphysema of Artificial Pneumothorax.—Korol states that in certain cases of artificial pneumothorax the treated lung presents transparent areas which on the roentgenogram appear as bright as or brighter than the air in the pneumothorax cavity. In practically all cases described in the literature there was a pleural exudate of long duration. In the majority of cases there were signs of bronchial fistula, such as high pressures in the pneumothorax, purulent effusions rich in tubercle bacilli or attacks of spontaneous pneumothorax. In all the cases the lung collapse was incomplete, owing to adhesions that existed prior to the induction of the pneumothorax. The author believes that this phenomenon is caused by (1) a progressive pachypleuritis, which thickens the pleura overlying the pneumothorax but spares the treated lung owing to preexistent adhesions, (2) areas of vicarious emphysema in the adherent lung and (3) air pockets between strands of adhesions or between the lung and the visceral pleura.

Archives of Otolaryngology, Chicago

25: 363-486 (April) 1937

- *Osteomyelitis of Frontal Bone Resulting from Extension of Suppuration of Frontal Sinus: Surgical Treatment. A. W. Adson and B. E. Hempstead, Rochester, Minn.—p. 363.
- Proposed Operation for Osteomyelitis of Inferior Aspect of Petrous Pyramid. M. C. Myerson, New York; R. Blumberg and H. W. Rubin, Brooklyn.—p. 373.
- Pulmonary Collapse Following Tonsillectomy Under Local Anesthesia: Report of Case. S. Iglauer, Cincinnati.—p. 382.
- Laryngoptosis: Ptosis of Larynx Due to Downward Displacement of Hyoid Bone Resulting from Fibrosis and Shortening (Congenital Anomaly) of Left Sternohyoid and Sternothyroid Muscles. G. Tucker, Philadelphia.—p. 389.
- Treatment of Asthmatic Patients in Otolaryngologic Practice. N. Fox and J. W. Harned, Chicago.—p. 393.
- Intratracheal Inhalation Anesthesia: Review of Ten Years' Experience, with Especial Reference to Its Field of Usefulness, Details of Technique and Objections Raised Against the Method. P. J. Flagg, New York.—p. 405.
- Bronchiectasis in Children, with Especial Reference to Prevention. G. B. Ferguson, Albuquerque, N. M.—p. 430.
- Nasal Obstruction in the Adult: Quantitative Study. H. J. Sternstein, Boston.—p. 442.
- Aberrant Gaiter: Report of Instance of Intralaryngeal Thyroid Tumor. H. B. Beeson, Racine, Wis.—p. 449.
- Otitic Meningitis. R. Schillinger, Brooklyn.—p. 455.
- Great Vessels in Deep Infection of the Neck. L. C. Boemer, St. Louis.—p. 465.

Osteomyelitis of Frontal Bone.—Adson and Hempstead employ a procedure that prevents the usual deformity that follows an operation on the frontal sinus and permits the removal of all sequestrums and thorough drainage of the frontal sinus by removing the posterior table of the sinus. The surgical

principles include (1) adequate drainage of the frontal sinus, (2) removal of pus, necrotic bone and all white dead bone, (3) preservation of the periosteum if possible and (4) concealing the incisions of the scalp within the hair line. The last principle is accomplished by employing a coronal incision placed in the hair line. The incision should extend through the scalp to include the periosteum. It is not only important to remove the sequesterum, the island of necrotic bone, but it is likewise important to remove the adjacent dead bone even though it involves both tables of the skull. If a small island of avascularized bone remains it will act as a source for continuous drainage and cause further extension of the infective process. However, it is not necessary to remove living or bleeding bone. After complete sequestrectomy and the exenteration of the frontal sinus, the entire surgical field is washed with pure tincture of iodine. The frontal sinus is packed with gauze soaked in tincture of iodine. Additional strips of similar gauze are laid in the bony channel, and all are brought out through the line of suture. Extraperiosteal infection and infection of the scalp, if present, are drained by incisions through the periosteum from underneath the flap. Injury to the periosteum covering the defect over the craniotomy should be avoided, since the preservation of the periosteum stimulates the formation of new bone and the filling of the defect. The gauze drains are shortened daily and are completely removed by the third postoperative day. The removal of necrotic bone, the complete posterior exenteration of the frontal sinus and the free use of the tincture of iodine result in primary healing of the operative wound. Extensive sequestrectomy as employed at the Mayo Clinic has been used innumerable times for other osteomyelitic processes involving cranial bones. It has proved to be much more effective in cleaning up an extensive process than has drainage by a mere stab wound and the curettement of localized regions. Abscess of the brain invariably develops if improper drainage is instituted or if the infection is allowed to continue.

Arkansas Medical Society Journal, Fort Smith

33: 187-206 (April) 1937

- Sedimentation Test in Chronic Arthritis: Its Value as an Aid to Differential Diagnosis and Treatment. M. F. Lautman, Hot Springs National Park.—p. 187.
- Organized Medicine: A Few Facts Concerning Its History and Value. M. J. Kilbury, Little Rock.—p. 189.
- Sarcoma of the Breast: Case Report. Ruth Ellis, Fayetteville.—p. 193.

Canadian Medical Association Journal, Montreal

36: 339-448 (April) 1937

- *Clinical Study of Silicosis. H. H. Moore and M. J. Kelly, Timmins, Ont.—p. 339.
- Gastroscopy: Its Indications and Value. P. H. T. Thorlakson and C. B. Stewart, Winnipeg, Manit.—p. 345.
- Echinococcus Alveolaris: Report of Case. E. James and W. Boyd, Winnipeg, Manit.—p. 354.
- Haematemesis Following Appendectomy. G. H. Kitchen, New York.—p. 357.
- Bilateral Congenital Absence of Radii. A. E. Harbeson, Kingston, Ont.—p. 359.
- Primary Sarcoma of Uveal Tract: Analysis of Twenty-Seven Cases. S. H. McKee, Montreal.—p. 361.
- Trend of Diabetes in Saskatchewan, 1905 to 1934. Lillian A. Chase, Regina, Sask.—p. 366.
- Antipneumococcus Serum in Pneumonia. G. C. Anglin and M. H. Brown, Toronto.—p. 370.
- Toxemias of Pregnancy. R. Mitchell, Winnipeg, Manit.—p. 376.
- Comparison of Total Hysterectomy versus Supravaginal Hysterectomy. J. J. Mason, Vancouver, B. C.—p. 380.
- *The Size of the Heart After Coronary Thrombosis. J. H. Palmer, Montreal.—p. 387.
- Experimental Arspenamine Dermatitis: Influence of Vitamin C in Production of Arspenamine Sensitiveness. F. E. Cormia, Montreal.—p. 392.
- Estrogenic Hormones in Treatment of Vulvovaginitis in Children. J. V. Berry, Ottawa, Ont.—p. 396.
- Cysts of Semilunar Cartilages of Knee Joint. D. M. Meekison, Vancouver, B. C.—p. 399.
- Additional Note on Innervation of Tumors. H. Oertel, Montreal.—p. 401.

Clinical Study of Silicosis.—On the basis of a clinical investigation of 203 gold miners, Moore and Kelly find that it may be possible to recognize the miner who will develop silicosis, before the appearance of the usual signs, by lowered basal metabolism and pulse rates. Thyroid therapy may possibly not only prevent the development of silicosis but also

arrest its further progress and possibly reduce to some extent the degree of fibrosis already existing. Social and living conditions and diet are quite uniform among miners and evidently do not affect the development of silicosis. There was no evidence to show that liver, kidney or heart disease was associated with dust inhalation. A large proportion of silicotic patients have shortness of breath in varying degrees. Those studied had a lowered basal metabolic rate and slow pulse, which might be a compensating factor in reducing cardiac output with lessened heart strain and account for the large number of normal-shaped hearts in cases of longstanding silicosis. This is contrary to what one would expect in the presence of diffuse lung fibrosis. The presence of definite evidence of heart disease in a silicotic patient disabled from shortness of breath would certainly point to the fact that part of the disability is due to heart disease. The authors, however, know of no way to determine what proportion of the disability should be apportioned to one or other cause of the disability.

Size of the Heart After Coronary Thrombosis.—Palmer bases his clinical observations on the incidence and cause of cardiac enlargement on an analysis of 200 cases in which the attack was survived at least three months. The size of the heart was determined by x-ray study in every case. It invariably consisted of fluoroscopy in the anteroposterior and right and left oblique positions, frequently supplemented by orthodiagram and/or teleroentgenogram. Cardiac enlargement was found in 128 (64 per cent); thirty-two cases in which the report was "enlargement doubtful" were not included in this percentage but were classified as normal. By far the most important factor causing enlargement proved to be hypertension, which was held to be the single or predominant cause in more than 80 per cent of all cases with enlargement. Disease of the coronary arteries, either the actual thrombosis with its resulting infarction or the underlying arteriosclerosis, led to increase in the size of the heart in a total of eleven cases. No example of so-called acute dilatation of the heart was discovered among twenty-seven patients examined within a month of the attack. Congestive failure, which was not seen in hearts of normal size, seldom led to an appreciable increase in the degree of enlargement. About a third of the patients (36 per cent) failed to show or to develop enlargement, though observed over periods averaging more than three years following the first attack of coronary thrombosis. This number included several with recurrent attacks.

Indiana State Medical Assn. Journal, Indianapolis

30: 177-226 (April) 1937

- *Water Metabolism. F. A. Collier, Ann Arbor, Mich.—p. 177.
Anesthesia for Thyroid Surgery. L. F. Sise, Boston.—p. 180.
Treatment of Disturbances of Thyroid and Parathyroids and of Anterior Pituitary and Gonads. E. L. Sevringhaus, Madison, Wis.—p. 185.
The Service of the American Medical Association to Society. C. G. Heyd, New York.—p. 190.
Repair of Depressed Disfiguring Scars by Means of Rib Cartilage Implant. H. M. Trusler, Indianapolis.—p. 194.
Traumatic Aneurysms of the Extremities. W. D. Little, Indianapolis.—p. 196.
Cerebrospinal Rhinorrhea: Report of Unusual Case. H. C. Wurster, Mishawaka.—p. 199.

Water Metabolism.—Collier points out that abnormal losses of fluid, such as through vomiting, diarrhea, drainage from fistulas or exudations from large ulcers, are frequently of huge volume and must be carefully measured, recorded and replaced. Such losses, continued over a number of days and inadequately restored, will often lead to dehydration in spite of what appears to be a generous intake of fluid. A negative water balance should always be suspected and eliminated whenever dealing with cases of oliguria or anuria of no obvious cause. In order to maintain the water balance of a patient who cannot use his gastro-intestinal tract, 2 liters should be allowed for the loss through vaporization, 1.5 liters for the urine and to this a quantity equal to whatever amount the patient is vomiting or losing otherwise should be added. Secondly a dehydrated patient should be given fluid equal to 6 per cent of his body weight and then treated as one whose water balance is being maintained. Loss from the gastro-intestinal tract should

be replaced by physiologic solution of sodium chloride and the remainder of the fluid given as 5 per cent dextrose in distilled water.

Iowa State Medical Society Journal, Des Moines

27: 139-182 (April) 1937

- Clinical Management of Diabetes Mellitus Using Protamine Zinc Insulin. E. B. Winnett, Des Moines.—p. 150.
Coccygodynia: Study of End Results of Treatment. W. R. Hamsa, Iowa City.—p. 154.
Parenteral Oxygen Administration. T. Stuckart, Dubuque.—p. 156.
Diagnostic Mistakes. R. L. Gorrell, Clarion.—p. 159.

Johns Hopkins Hospital Bulletin, Baltimore

60: 223-312 (April) 1937

- Boeck's Sarcoid (Sarcoidosis). W. T. Longcope and J. W. Pierson, Baltimore.—p. 223.
*Use of Para-Amino-Benzene-Sulfonamide or Its Derivatives in Treatment of Beta-Hemolytic Streptococcal Meningitis. F. F. Schwenker, F. P. Clason, W. A. Morgan, J. W. Lindsay and P. H. Long, Baltimore.—p. 297.

Treatment of Beta-Hemolytic Streptococcus Meningitis.—Schwenker and his collaborators used sulfanilamide or its derivatives in the treatment of four cases of meningitis due to beta-hemolytic streptococci. Two of the patients had a primary otitic focus and one a traumatic focus (craniotomy wound), and in the fourth no purulent focus was discovered. In three patients surgical intervention (mastoidectomy, exploratory craniotomy) accompanied therapy with sulfanilamide or its derivatives. Three patients received intraspinal therapy with these chemicals while, in the other patient, oral therapy alone was used. Three patients recovered and one died. It appears that sulfanilamide or its derivatives offer the possibility of a specific chemotherapeutic approach to the treatment of beta-hemolytic streptococcus meningitis. A combination of oral and intraspinal therapy seems to deserve a thorough trial. If the patient is not nauseated and can swallow, treatment should be started with sulfanilamide by mouth and also by the intraspinal route. Tablets are used for oral administration. The total dose for the first twenty-four hours is calculated on the basis of three tablets (1 Gm.) to each 20 pounds (9 Kg.) up to 100 pounds (45 Kg.) of body weight. For adults with acute infections the authors believe that 5 Gm. of this substance represents the maximal daily dose. This total amount is divided into four doses given at intervals of six hours. In preparing the drug for clinical use it is their practice to dissolve 0.8 Gm. in 100 cc. of physiologic solution of sodium chloride which has been brought to the boiling point and then cooled to about 90 C. Such 0.8 per cent solutions of sulfanilamide may be used intrathecally. The general practice in administering the drug intrathecally should closely follow that recommended for the use of antimeningococcus serum in meningococcal meningitis, namely, that rather complete spinal drainage by lumbar puncture should be instituted and then from 15 to 25 cc. of a warm, freshly prepared, 0.8 per cent solution of sulfanilamide should be permitted to flow in by gravity. If the patient cannot swallow tablets, parenteral therapy by the subcutaneous route with either hydrochloride of 2:4 diaminoazo-benzene-4' sulfonamide or an 0.8 per cent solution of sulfanilamide in sterile physiologic solution of sodium chloride may be instituted. With the former solution, 1 cc. per pound of body weight constitutes the total daily dose. This is divided into four equal doses given at intervals of six hours. If 0.8 per cent sulfanilamide solution is used, it should be given as a hypodermoclysis in the following amounts: For patients weighing up to 40 pounds (18 Kg.) 100 cc., from 40 to 80 pounds (18 to 36 Kg.) 200 cc., from 80 to 120 pounds (36 to 54 Kg.) 300 cc., and for those weighing more than 120 pounds 400 cc. in twenty-four hours. Therapy should be continued at the advised level until the spinal fluid has been rendered sterile for at least forty-eight hours and a marked general improvement in the patient's condition has occurred. At this point the intraspinal therapy may be discontinued and the amount of the drug given by mouth reduced by one third. Adequate oral therapy should be maintained until the patient is entirely well. Surgical procedures designed to eradicate septic foci are indicated in streptococcal meningitis as an adjunct to specific therapy, but extensive surgical intervention should not be resorted to until the infection has been brought under control by specific therapy.

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Journal of Comparative Neurology, Philadelphia

66:1-300 (Feb.) 1937

- Cellular Morphology in Area Postrema. L. S. King, Princeton, N. J.—p. 1.
- Ontogenetic Development of Diencephalic Centers in a Bird's Brain (Chick) and Comparison with the Reptilian and Mammalian Diencephalon. H. Kühlenbeck, Philadelphia.—p. 23.
- Development of Vascularity in the Hindbrain of the Chick. R. G. Williams, Philadelphia.—p. 77.
- First Study of Size of Cells in Cerebral Cortex. G. von Bonin, Chicago.—p. 103.
- Experimental Study of Optic Tracts and Retinal Projection of Virginia Opossum. D. Bodian, Chicago.—p. 113.
- Thalamic Nuclei of Macaca Mulatta: Note. A. E. Walker, Chicago.—p. 145.
- Development of Behavior in Avian Embryos. H. Tuge, Sendai, Japan.—p. 157.
- Further Experimental Investigations on Phenomenon of Homologous Response in Transplanted Amphibian Limbs: I. Functional Observations. P. Weiss, Chicago.—p. 181.
- Visual Centers in Blinded Rats. Y.-C. Tsang, Chicago.—p. 211.
- Topography of the Brain Stem of Rhesus Monkey, with Especial Reference to Diencephalon. D. Atlas and W. R. Ingram, Chicago.—p. 263.
- Topography of Pretectal Area of Monkey: Note. D. Atlas and W. R. Ingram, Chicago.—p. 291.

Kentucky Medical Journal, Bowling Green

35:169-220 (April) 1937

- Chorionepithelioma. J. H. Caldwell, Newport.—p. 172.
- The Management of Epidemic Cerebrospinal Meningitis in an Industrial Community. C. R. Petty, Lynch.—p. 180.
- Healing Processes in Tuberculosis. C. H. Cocke, Asheville, N. C.—p. 185.
- Abuses of Physical Energies in Practice of Medicine and Surgery. A. D. Willmoth, Louisville.—p. 190.
- Functional Heart Disease in Childhood. R. B. Warfield, Lexington.—p. 196.
- Treatment of Different Types of Edema. F. M. Travis, Frankfort.—p. 199.
- Fractures of the Elbow. R. T. Hudson, Louisville.—p. 202.
- Diagnosis and Treatment of Lesions of External Male Genitalia. W. U. Rutledge, Louisville.—p. 204.
- Present-Day Management of Surgical Lesions of Stomach and Duodenum. F. W. Rankin, Lexington.—p. 209.
- *Interpretation of Gastric Pain. F. M. Sherman, Owensboro.—p. 215.

Interpretation of Gastric Pain.—Sherman confines his discussion to pain in the upper part of the abdominal region or gastric area. The painful diseases of the stomach belong, according to nomenclature, to three main groups: inflammations, ulcerations and new growths. Stomach pain is nearly always epigastric, occasionally it may be referred to the left or to the right, but as a rule it is situated in the pit of the stomach. In inflamed conditions of the stomach the pain is likely to appear soon after eating. There is no group of digestive diseases that gives the same degree of periodicity and rhythmicity to pain as does peptic ulcer. Gastric ulcer nearly always gives pain within one to two hours after taking of food, while duodenal ulcer is somewhat later. In every instance one must rule out organic disease of the central nervous system. One of the commonest causes of pain in the epigastric region is gallbladder disease. It is responsible for more gastric disturbance, so-called indigestion and flatulence than anything else. Pancreatic disease in its chronic form resembles gallbladder disease in its annoying persistence. The relationship to food is not so clearly drawn as it is in gastric or duodenal disease. Situated on the posterior wall of the body, the pain is frequently referred to the back, although it may persist in the epigastrium. Splenic disease may be an exceedingly painful condition, but the pain is usually located in the left hypochondriac region. Other causes of pain in the gastric region may be enumerated as follows: epigastric hernia, postoperative hernia, adhesions, perigastritis, diverticulitis (more particularly of the duodenum), hepatitis, retroperitoneal growths, tubercular obstructions and many lesser conditions. There are many disorders causing epigastric pain that are not due to stomach disease which may exist and so affect the stomach directly or reflexly that the clinical picture may suggest stomach disease rather than the true condition. Esophageal disease frequently becomes manifest on deglutition, stomach disease as ulcer about two hours after eating, duodenal disease about three or four hours after taking food, and gallbladder, pancreatic and hepatic conditions four or five hours after eating, while colon disease manifests itself during defecation. Genito-urinary disease is usually manifested during the act of micturition, and evidence of spinal, skeletal

or muscular disease when active function of the part involved is demanded. Other conditions that may be misleading are influences through the blood stream, the various allergic conditions, acute infectious diseases, such as measles, lead poisoning, and undulant and rheumatic fevers. Herpes zoster may mimic an acute abdominal condition in its early stage, before the appearance of the characteristic rash; ordinarily the pain and other symptoms are not sufficiently marked to suggest an intra-abdominal or gastric lesion.

Maine Medical Journal, Portland

28:71-88 (April) 1937

- Blood Sugar Determination Valueless Unless Drawn and Examined with Special Precaution. A. J. Stinchfield, Skowhegan.—p. 71.
- Gallbladder Problems. C. M. Robinson, Portland.—p. 74.
- Uses and Limitations of Barbiturates in General Practice. P. L. Gray, South Brooksville.—p. 76.
- Hormone Treatment of Some Functional Gynecologic Disorders. A. H. McQuillan, Waterville.—p. 83.

Michigan State Medical Society Journal, Lansing

36:211-262 (April) 1937

- Recent Advances in Nutritional Research: Beaumont Foundation Lectures Before the Wayne County Medical Society, Detroit. E. V. McCollum, Baltimore.—p. 211.
- Empyema and Its Management. G. C. Penberthy and C. D. Benson, Detroit.—p. 227.
- Serum Treatment of Pneumococcal Peritonitis. W. B. Cooksey, Detroit.—p. 232.
- Clinical Study with Insulin Protamine. J. H. Chalot and Alice H. Smith, Detroit.—p. 234.

New England Journal of Medicine, Boston

216:539-586 (April 1) 1937

- Surgical Treatment of Certain Repeated Explosive Attacks of Vertigo Occurring in Absence of Any Demonstrable Etiology—Ménière's Disease: Report of Fourteen Cases of This and Other Types of Aural Vertigo and Including One Case Involving Both Vestibular Nerve. D. Munro, Boston.—p. 539.
- *Neurofibromatosis with Intrathoracic Neurofibromas. N. Epstein, Boston.—p. 551.
- Tannic Acid-Silver Nitrate Treatment of Burns in Children. M. B. Low, Deerfield, Mass.—p. 553.
- Benign Tumors of the Scrotum: Report of Three Cases. E. R. Mintz, Boston.—p. 557.

Intrathoracic Neurofibromas.—Epstein reports the case of an Armenian girl, aged 4 years, with large tumors of the chest, admitted to the Boston Floating Hospital in the winter of 1935. Her past history was negative up to December 1933, when a small lump in the right axilla was noted. Roentgenograms revealed a large thoracic shadow in the right apical region, and a diagnosis of probable neurofibroma was made. Permission to perform an operation was refused at this time, but she was rehospitalized later because of the persistence of the chest mass. Clinically the patient presented no unusual features. Operation was performed in January 1936 under basal tribromethanol anesthesia and intratracheal ether-oxygen with differential pressure. A curved incision was made posteriorly, releasing the scapula, which was retracted anteriorly. There were large neuromas beneath the skin and in the substance of the trapezius and rhomboid muscles. When the bony wall of the chest had been exposed, the perforating branches of the intercostal nerves were found to be grossly enlarged by fusiform swellings. The second to fourth ribs were divided and the pleural cavity was opened. The apex of the chest was filled by a large tumorous mass that lay close against the vertebral column and extended laterally and anteriorly in such a way that it impinged on the chest wall. The spinal nerves entered this mass directly from the vertebral foramina. These roots were severed and a large mass of neurofibromatous tissue was removed. The first rib was left intact to protect the subclavian vessels and the important cords of the plexus, but, in view of the subsequent partial palsy of the ulnar and median nerves, the first dorsal root of the plexus was injured, presumably, by traction. After the tumor had been removed, the chest wall was closed in layers without drainage. Within two months after the operation the mass in the neck increased in size. The presence of a firm "ropy" tissue was observed, extending from the right axilla along the course of the median nerve to the anterior cubital fossa and thence to the midwrist. This tissue was most pronounced in the upper part of the middle arm, where a hard mass was felt. A partial paralysis of the median and ulnar nerves occurred on the right side with a

corresponding atrophy of the thenar and hypothenar eminences. The skin of the right palmar surfaces was glossy and dry in comparison to that of the left. There was a slight improvement in the quality of the pulse. The right eyeball protruded slightly and there was also a slight ptosis of the right lid and persistence of the miosis. Roentgenograms showed that the mass in the left side of the chest had increased in size. The mediastinum was still very wide in the region of the operation, and the heart was in the median position.

Philippine Islands Med. Association Journal, Manila

17: 63-132 (Feb.) 1937

- Tuberculosis Incidence in the Philippines as Revealed by X-Ray and Effective Preventive Measure Against the Disease. S. A. Francisco, Manila.—p. 63.
Parasitologic Oddities. C. M. Africa, Manila.—p. 83.
Admissions to the Cebu Maternity House in Six Years, from 1930 to 1935, Inclusive. C. Camomot, Cebu, Cebu.—p. 95.
Orogenic Serous Meningitis: Report of Recovered Cases. G. de Ocampo, Manila.—p. 101.

Public Health Reports, Washington, D. C.

52: 347-386 (March 26) 1937

- Pulmonary Tumors in Mice: III. Serial Transmission of Induced Lung Tumors. H. B. Andervont.—p. 347.
52: 387-426 (April 2) 1937
Studies of Sewage Purification: VI. Biochemical Oxidation by Sludges Developed by Pure Cultures of Bacteria Isolated from Activated Sludge. C. T. Butterfield, C. C. Ruchhoft and P. D. McNamee.—p. 387.

Surgery, St. Louis

1: 487-654 (April) 1937

- *Method of Testing Superficial Blood Circulation for Considering Indication and Proper Level of Amputation. G. Nyström, Uppsala, Sweden.—p. 487.
Ununited Fracture of Neck of Femur. W. C. Campbell, Memphis, Tenn.—p. 499.
Disruption of Abdominal Wounds: Unsolved Problem. A. M. Shipley, Baltimore.—p. 517.
*Postoperative Wound Separation: Review of Cases. L. S. Fallis, Detroit.—p. 523.
Applications of Cavity Grafting. A. H. McIndoe, London, England.—p. 535.
Homografting of Skin: Report of Success in Identical Twins. J. B. Brown, St. Louis.—p. 558.
Comparative Study of Physiologic Activity of Cofebrin and Epinephrine. E. B. Tuohy and H. E. Essex, Rochester, Minn.—p. 564.
Suggestion in Technic of Cholecystectomy for Complicated Case of Gall-bladder Disease. H. P. Ritchie, St. Paul.—p. 581.
Edema in Surgical Patients. W. C. Curphey, Las Vegas, N. M., and T. G. Orr, Kansas City, Kan.—p. 589.
Diverticulosis of Small Intestine: Report of Three Cases. D. Guthrie and F. A. Hughes Jr., Sayre, Pa.—p. 595.
Diagnostic and Therapeutic Applications of Uterine Suction Curet. E. Novak, Baltimore.—p. 610.
Massive Congenital Fibromatous Pigmented Mole of Scalp. H. W. Meyer, New York.—p. 616.
La Mettrie. W. M. Millar, Cincinnati.—p. 623.

Testing Superficial Blood Circulation for Determining Level of Amputation.

—In the examination of the superficial circulation for determining the proper level of an amputation, Nyström has employed a method which causes an irritation of such intensity on the capillaries and small arteries that the greatest possible hyperemia is produced. The method is based on brief freezing of the skin with the aid of carbon dioxide snow. Fluid carbon dioxide is sprinkled in a little bag of velvet or leather, where it gathers in the form of snow. The snow is shaken out in a metal tube with a diameter of about 20 mm. and packed in a firm rod with the aid of a metal piston and a mallet. The ice rod is pressed against the skin for three seconds successively over the area to be tested in spots at a distance of from 5 to 10 cm. from each other. The procedure begins at the most distal point to be tested and continues upward. For comparison the same procedure is repeated on the corresponding parts of the other limb. In normal cases the white frozen spots of the skin thaw to normal consistency and color in about one minute. After another minute the hyperemia sets in and soon becomes maximal. The speed with which the hyperemia sets in and the grade of its intensity afford a certain guide as to the condition of the arterial supply. Also when the maximal effect is reached the hyperemic spot may be compressed with the finger for five seconds, then hastily removed, and with the aid of a stopwatch the seconds that elapse until the spot has again reached its maximal filling with blood are counted. Under normal conditions and in a horizontal posture,

the refilling of blood takes an average time of from one to two seconds. The return of the blood to the anemized spot is of a flaming character. With a bad arterial supply the time may be extended to ten, fifteen or twenty seconds or more. In normal conditions an edema begins to appear in the spot after from ten to fifteen minutes and soon brings about a slight, sharply limited elevation of the skin. As to the practical application of the results of the examination, the author first tried to make the amputations immediately above the lowest spot that showed a good hyperemia and wheal formation, but later he found it safer to choose a somewhat higher level, from 10 to 15 cm. above the lowest spot, with good response of hyperemia and edema.

Postoperative Wound Separation.—Fallis states that postoperative wound rupture occurred in fifty of 7,903 consecutive laparotomies performed at the Henry Ford Hospital, an incidence of 0.64 per cent. It is the practice to perform secondary closure immediately. This is possible if the patients are moved to the operating room and operated on in their own beds. The use of local procaine hydrochloride infiltration plus subcostal block provides adequate relaxation if general or spinal anesthesia is contraindicated by the patient's condition. Forty-nine of the fifty patients had a secondary closure done. A seasonal variation is shown in the series. Multiple operations had been performed in 73.5 per cent of the cases. In 55 per cent of the cases the operation had lasted one and one-half hours or longer. Stay sutures of silkworm-gut or silver wire were used in 36.5 per cent. The clinical picture in the noninfective cases suggests an allergic reaction. The mortality following secondary closure was 34 per cent.

Virginia Medical Monthly, Richmond

64: 1-64 (April) 1937

- Remarks on Prostatic Obstructions Observed During a Ten Year Period. J. H. Neff and E. W. Kirby, Charlottesville.—p. 1.
Problems in Diagnosis and Treatment of Peripheral Vascular Disease. N. Bloom and W. B. Porter, Richmond.—p. 7.
Roentgen Therapy in Inflammatory Conditions. W. P. Gilmer, Clifton Forge.—p. 15.
Radium in Treatment of Nonmalignant Diseases of Uterus. W. L. Peple, Richmond.—p. 16.
Hemihypertrophy: Case, Probably Acquired, Associated with Pituitary Tumor. F. A. Strickler, Radford.—p. 22.
*Deficiency Disease the Result of Interference with Absorption from Gastro-Intestinal Tract: Case Reports. T. D. Davis, Richmond.—p. 26.
Elimination of Back Flow in Uterosalingography. O. D. Boyce, Rural Retreat.—p. 30.
Appendicitis and Children: Report of Case with Intestinal Parasite. W. P. Frazer, Hamilton.—p. 31.
Studies on Persistence of Action of Digitalis and Digitalis Bodies. H. B. Haag, Richmond.—p. 33.
Diagnosis of Appendicitis in Children. M. L. Carr, La Grange, N. C.—p. 38.
Orthopedic Treatment of Muscular Dystrophies and Muscular Atrophies. G. A. Duncan, Norfolk.—p. 40.

Deficiency Disease from Poor Gastro-Intestinal Absorption.

—During the last fifteen years, Davis encountered eight patients who had well marked deficiency syndromes of the sprue type and in whom he made a diagnosis of nontropical sprue. The manifestations varied considerably in each case, which suggests that the underlying cause must not be exactly the same in all cases. On the other hand, the differences might be the result of the same factor operating on different individual constitutions. It is a dietary deficiency syndrome, which may be primary or may be secondary to chronic gastro-intestinal lesions. In the treatment of these patients a diet high in protein content but low in fermentable sugars and cellulose residue will make their abdomens more comfortable. Their carbohydrates may be made up with milk and lactose or possibly with bananas or banana powder. Liver extract or concentrated vitamin B complex may be helpful. If absorption is not adequate, the former may be given intramuscularly. Adequate amounts of calcium are indicated and again the injection method of administration may be advantageous. Some of the patients will have so much degeneration of their intestinal mucosa that it cannot be restored to function and the patient literally starves to death, even though he is ingesting adequate quantities of foodstuffs. Certain of these patients will be found to have localized intestinal lesions in the early stages which may be amenable to surgical resection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

34: 1-84 (Jan.-March) 1937

- *Gastric Acidity in Infants and Young Children Under Normal and Pathologic Conditions, with Especial Reference to Nutritional Anemia. Alice Stewart.—p. 1.
Schüller-Christian's Disease. F. R. B. Atkinson.—p. 28.
Apple Powder: Its Application to Intestinal Disorders: Simplification and Improvement on Heisler-Moro Raw Apple Diet. R. de Rohan Barondes.—p. 48.

Gastric Acidity in Children.—There appears to be no evidence that a congenital failure of gastric secretion is responsible for the development of the simple iron deficiency or nutritional anemias of infancy. Stewart therefore suggests that these anemias are the result of a pure deficiency in iron intake, which may date from before birth and is considerably influenced by prematurity. Once the anemia is established the general health of the child is lowered, intercurrent infections frequently occur and the acid secretion of the stomach is generally reduced. The absorption of the available iron is thus further impaired and a vicious circle is established. It is probable that infective states, particularly enteritis, play a part in the etiology of the iron deficiency anemias of childhood by causing chronic gastritis with suppression of acid secretion as suggested by Faber, but this point requires further investigation. It occurred to the author after completing the present investigations that, as so many of these patients are either premature infants or twins, a test meal examination of such children during the early weeks of life would be of interest. So far nine infants have been thus examined. At least a small amount of free acid was present in every case in spite of the comparatively high buffer action of the milk, which was shown by the total acid always reaching a considerably higher level. The average maximal free acid for the nine cases was 21.5 per cent of tenth normal solution and the average maximal total acid was 43.8 per cent of tenth normal solution. This preliminary investigation appears to support the foregoing contentions.

British Journal of Urology, London

9: 1-100 (March) 1937

- Pathologic Physiology of Functions of Kidney. I. Snapper.—p. 1.
Idiopathic Dilatation of Bladder. K. H. Watkins.—p. 26.
Present Status of Dietary Regimen in Treatment of Urinary Calculi. C. C. Higgins.—p. 36.

Edinburgh Medical Journal

44: 129-204 (March) 1937

- Clinical Notes on Eight Cases of Lymphogranuloma Inguinale (Climatic Bubo) and Its Sequels. R. C. L. Batchelor.—p. 129.
Clinical Recollections and Reflections: XI. Vomiting in Infancy. W. Brown.—p. 144.
Value of Examination of Contacts in Pulmonary Tuberculosis. G. S. Banks.—p. 153.
Bacteriology of Tuberculous Abdominal Adenitis. J. Smith.—p. 165.
Radiologic Aspects of Tuberculous Adenitis of Abdomen. D. F. Levack.—p. 172.
Surgical Aspects of Tuberculous Adenitis of Abdomen. W. Anderson.—p. 176.
General Prognostic Aspects of Tuberculous Adenitis of Abdomen. W. Brown.—p. 180.
Pharmacology of Some Newer Drugs Employed in Tuberculosis Therapy. J. M. Johnston.—p. 184.

Irish Journal of Medical Science, Dublin

No. 134: 49-96 (Feb.) 1937

- Critical Survey of Irish National Health Activities. C. Bastible.—p. 49.
Some General and Clinical Applications of Recent Research on Hemolytic Streptococci. R. C. Cummins.—p. 56.
Achloric Anemia. L. Abrahamson and A. Thompson.—p. 66.
*Pyknolepsy: Report of Case. H. L. Parker.—p. 70.
Radiology in Diseases of Gallbladder. S. J. Boland.—p. 73.

Pyknolepsy.—Parker states that pyknolepsy is rare. Certain features of pyknolepsy tend to separate it from the more common clinical syndrome of petit mal. Girls are more commonly affected and the family history is usually free from epilepsy, insanity and kindred diseases. The onset is between the age of 4 and 10 years, and while in the case reported the disease came on gradually, more usually it is abrupt and overwhelming from the beginning. There is a stereotyped character of the attack as in petit mal such that it rarely changes its character through-

out the course of the disease. The characteristic feature, however, is its extreme brevity, so that the whole attack is a matter of a few seconds and considerably shorter than the average course of petit mal. Another distinguishing feature is the extreme frequency with which these attacks occur. They may reach the striking total of a hundred a day. The degree of loss of consciousness is slight and is perhaps the principal feature. The patient never falls and may continue to carry out in a more or less efficient manner activities originally engaged in. While petit mal shows but little response to antiepileptic drugs such as bromides and phenobarbital, pyknolepsy does not respond at all. There are certain reasons why it is important to recognize pyknolepsy even though its existence as a clinical entity may be doubted. Some months or years may be necessary for this recognition, and caution must be used before reaching such a conclusion. In spite of the tremendous frequency of the attacks, there is little or no mental deterioration. Pyknolepsy runs a natural course and disappears at or about puberty as mysteriously as it came. In this it stands out supreme among the epilepsies as a benign affliction.

Lancet, London

1: 613-676 (March 13) 1937

- Treatment of Acute Rheumatism in Childhood. R. Lightwood.—p. 613.
Nitrous Oxide Analgesia in Obstetrics: New Type of Machine for Self Administration of Gas. C. Moir.—p. 615.
Turmeric (Curcumin) in Biliary Diseases. A. Oppenheimer.—p. 619.
Anticure Action of Substance 36: Closely Related to Prostigmin. Grace Briscoe.—p. 621.
Sporadic Salmonella Infections: Case Report. J. H. Fisher.—p. 623.
Hernio-Appendicectomy. J. T. Morrison.—p. 625.
Sulphemoglobinemia Following Sulfanilamide Treatment. G. Discombe.—p. 626.

Medical Journal of Australia, Sydney

1: 313-348 (Feb. 27) 1937

- Cardiac Pain. W. E. Fisher.—p. 313.

1: 349-386 (March 6) 1937

- Heart Disease and National Welfare. A. R. Southwood.—p. 349.
Anxiety and the Heart, with Analysis of Cases. R. Whishaw.—p. 360.
Blood Transfusion: Closed Method of Collection and Administration. W. H. Milroy and A. D. Matheson.—p. 366.

Nature, London

139: 261-302 (Feb. 13) 1937

- New Discovery of Three Skulls of *Sinanthropus Pekinensis*. F. Weidenreich.—p. 269.
*Nature of Causative Agent of Rous Fowl Sarcoma. E. M. Fraenkel and C. A. Mawson.—p. 282.
Effect of Vitamin E Deficiency on Thyroid. M. M. O. Barrie.—p. 286.

Nature of Causative Agent of Rous Fowl Sarcoma.—Fraenkel and Mawson have confirmed the fact that it is possible to deposit the agent from extracts of Rous sarcoma by centrifugation at 15,000 revolutions per minute, but they have been unable to obtain satisfactory correlation between the number of elementary bodies in different active preparations and the infectivity of the extracts. The supernatant after centrifugation is usually much less active and contains many fewer ultramicroscopic particles than the original extracts, but the infectivity of material concentrated many times on the centrifuge is seldom so active as would be suggested by the enormous numbers of elementary bodies present. Their impression is that the tumor-producing activity of Rous extracts is associated with material which can be deposited at 15,000 revolutions per minute, but they believe that only a small proportion of the elementary bodies visible in the extract can be associated with that activity, and they would emphasize that the possibility that the active agent is adsorbed on the surface of such particles cannot be excluded. The hypothesis of a purely chemical agent of the Rous sarcoma seemed to be confirmed when Jobling and Sproul claimed that repeated injections of an acetone extract of fresh Rous sarcoma tissue would produce similar tumors. Unless their technic has differed in some way the authors conclude that the results of Jobling and Sproul were due to fine suspensions of active material in their solvents. This possibility is enhanced by the fact that in their own experiments with dried powders the activity remained in the residue after extraction. This conclusion is disappointing from the point of view of the chemical hypothesis, but it does not exclude the conception suggested by virus-enzyme, as such a substance might be expected to be insoluble in acetone.

Archives des Maladies du Cœur, Paris

30: 121-180 (March) 1937

- Fallot's Tetrad Without Cyanosis. J. Fleury.—p. 121.
*Influence of Bodily Strain on Heart of Athletes: Cardiographic Study. M. Rosnowski.—p. 133.
Acrocyanosis. R. Cavalcanti.—p. 141.

Influence of Strain on the Hearts of Athletes.—Rosnowski has taken 203 electrocardiograms of skiers and marchers immediately before, during, and twenty-four and forty-eight hours after the strain. He took accurate measurements of the rhythm and the amplitude of the waves in all three derivations and made exact figures of each particular period of cardiac phases in the second derivation. All athletes have a bradycardia, but after a prolonged effort the duration of heart beats becomes shorter, often by 60 per cent of the space between the P and T waves. The space between the R and T summits goes down 16.4 per cent and the T wave itself 10 per cent. The P wave (auriculoventricular) is not always the same, but its average is generally increased 12 per cent. Concerning the rhythm there was a partial or sometimes even a total blockage of the bundle of His (lengthening of PR). Three subjects had a ventricular extrasystole, which disappeared in two after the strain but persisted in one. Four had a nodal arrhythmia before the strain, which disappeared after it and reappeared from twenty-four to forty-eight hours later. Sinusoidal arrhythmia is most frequently encountered. The autonomous nerves exercise a great influence on a strained heart, subjecting it to a sympathetic tonus during exercise and to a vagotonus soon after it. The development of the auriculoventricular waves (T) soon after the strain depend, according to the author, on the intensified work of the heart muscle. The enlarged T wave signifies a good functional adaptability of the ventricles, considering the energetic return of the cardiac muscle to a state of rest. The diastole or ventricular intermission is longer in paving the way for the succeeding systole, whereby the left ventricle carries the brunt.

Presse Médicale, Paris

45: 449-464 (March 24) 1937

- *Against Decortication of Hydatid Cysts. Costantini and Oulié.—p. 449.
Pain Following Dental Extraction: Rôle of Sympathetic System in Pathogenesis and Treatment. M. Dechaume.—p. 451.
*Benign Meningitis of Swineherds. G. Charleux.—p. 452.

Decortication of Hydatid Cysts.—Costantini and Oulié find the Russian method of operation on hydatid cysts rather dangerous. This method is practiced at Karkhoff and Professor Melnikoff states that the closed cystotomy transforms a parasitic cyst into a nonparasitic cyst, that, except for large cysts, cystectomy is the operation of choice and that cystotomy is the operation of necessity. While Melnikoff's statements are based on thirty-four cases, Oulié's experience with 164 hydatid cysts led him to different conclusions shared by some other Russian schools which, though regarding decortication of hydatid cysts as an ideal operation, consider it dangerous if the cyst is embedded in the parenchyma, which would necessitate a further resection of the pericystic tissue of the liver. To do so is useless, since after Daniliak the fibrous capsule could not cause dissemination of the disease. Its structure will not permit the parasite to vegetate there. The authors are therefore much in favor of the classic procedure, which in aseptic cysts consists of puncture, formolization, aspiration of the liquid and, if possible, of the vesicles, wide opening and removal of the parasite and of existing vesicles, verification that the pouch has been well emptied, closure of the opening at different points and fastening to the abdominal wall. In suppurated cysts and in those containing bile, marsupialization of the pouch is practiced. This operation will obviate the immediate danger of hemorrhage and will also do away with belated casualties to the peritoneum from an accidental opening of the cyst.

Benign Meningitis.—Charleux gives the description of an acute benign meningitis encountered mostly among fruit gatherers of Switzerland and Savoy. This disease attracted some attention recently because from 5 to 10 per cent of the students of the dairy farms in Berne fell victims to it. It was found to attack mainly young laborers who, besides gathering fruit,

are occupied in the making of cheese, the by-products of which are fed to pigs. These are probably the transmitting agents. The intermediary host is not known. The disease begins suddenly with chills and high temperature, coated tongue, vomiting, obstipation or diarrhea. The feces have the odor of pigs. Violent headaches and dull sensorium have often led to the diagnosis of typhoid or paratyphoid. Both torticollis and Kernig's sign are marked. The patient is often restless but shows no somnolence or delirium. There is often lymphocytosis but no change in mononuclears and polymorphonuclears. The diagnosis must be differentiated from tuberculous meningitis through the fact that the patient is well nourished and by considering the nature of his occupation. Furthermore, perspiration, cyanosis and slight eruption on the skin, added to the gastrointestinal symptoms, will facilitate the diagnosis. Lumbar puncture eases the headaches and seems to shorten the time of illness. Phlebotomy also gives good results, probably by reducing the cerebrospinal tension.

Schweizerische medizinische Wochenschrift, Basel

67: 305-328 (April 10) 1937. Partial Index

- Development of Medical Bacteriology. W. Silberschmidt.—p. 305.
*New Points of View on Nature and Significance of Pelger's Nuclear Anomaly of Leukocytes. R. Stahel.—p. 308.
Renal Carbuncle with Multiple Cortical Abscesses in Other Kidney: Case. J. Bangert.—p. 310.
Renal Diabetes. D. Sucić.—p. 312.
Caffeine Should Be Added to Strophanthin Injection. L. Bischoff.—p. 316.
Acute Aleukemic Myeloblastic Leukemia: Case. Schnyder.—p. 316.

Pelger's Nuclear Anomaly of Leukocytes.—Stahel directs attention to the nuclear anomaly of the leukocytes, which was first described by Pelger in 1930. The segmentation of the neutrophils does not exceed two segments, and numerous staff cells appear in spite of the absence of an infectious state of irritation. The nucleus of all segmented cells has the same well rounded pear-shaped outline. The nuclear structure is surprisingly coarse and lumpy. These coarse outlines are found also in the staff cells. Pelger's anomaly was first regarded as a hereditary disorder, with dominant transmission, which had no particular significance for the health of the person, but a connection with tuberculosis was likewise suggested, for tuberculosis was repeatedly observed in families and individuals who had Pelger's anomaly. A review of the literature of the cases of Pelger's nuclear anomaly demonstrates the frequent concurrence with tuberculosis. Especial attention is given to two cases in which the bone marrow had been examined. Observations in these cases and observations after the injection of a bacterial protein preparation indicate a special mode of reaction of the bone marrow. A connection with tuberculosis seems likely, since it might elicit a special bone marrow reaction. It is possible that the defense against infections is impaired in persons with Pelger's nuclear anomaly.

Ginecologia, Turin

3: 159-238 (March) 1937

- *Late Sequels of Gravidic Pyelitis. E. Robecchi and G. Dodero.—p. 159.
Fertility: Technic for Morphologic Examination of Semen. G. Valle.—p. 179.
Relation Between Syphilis and Maceration of Fetus: Clinical and Statistical Study. G. Vurchio.—p. 191.
*Behavior of Testicle Following Interruption of Vas Deferens: Experiments. M. Bertini.—p. 207.
Fetal Anatomotopographic Modifications in Shoulder Presentation. E. Robecchi.—p. 221.
Fracture of Pelvis with Central Luxation of Head of Femur Restricting Size of Pelvis: Case. G. Bertone.—p. 233.

Late Sequels of Gravidic Pyelitis.—Robecchi and Dodero studied the frequency of late complications in gravidic pyelitis and the type of lesions left by the disease. In a group of eleven women suffering from typical gravidic pyelitis five or thirty months previously, the urine, taken by catheterization of the ureters, was examined and an ascending pyelography was made. In eight of the patients there were late sequels consisting in the presence of leukocytes and bacteria in the urine and dilatation of the ureters and of the pelvis. According to the authors, the gravity and permanence of the sequels that take place in gravidic pyelitis depend on the time of duration of the acute phase of the disease. They are unrelated to the time that elapses between the control of the disease and examination

of the patient. The authors emphasize the importance of early examination and treatment in patients who suffered from the disease, especially in case of a new pregnancy, in order to prevent development of sequels by controlling the disease before establishment of permanent organic alterations.

Behavior of Testicle After Interruption of Vas.—Bertini unilaterally interrupted the deferent duct in rabbits and observed the testicle for five months after the operation. The latter does not cause changes of the seminiferous epithelium. The alterations produced by the operation are dilatation of the epididymis and atrophy of the epididymal epithelium. The testicle shows no atrophy, but the spermatogenic function is diminished. The testicular secretion, taken from puncture, showed the vitality of the spermatozoa to be good.

Giornale di Batteriologia e Immunologia, Turin

18: 145-288 (Feb.) 1937. Partial Index

- Disinfectant Value of Denatured Alcohol. G. Marinelli.—p. 145.
Structure of Bacterial Colonies: Histologic Studies of Colonies of Tubercle Bacilli. H. D. Ravich-Birger and A. A. Svinkina.—p. 170.
*Action of Colloidal Carbon in Intravenous Injection on Organic Immunity Against Experimental Infection. D. David.—p. 186.
*Influence of Dextrose on Development of Immunity in Course of Active Specific Immunization. P. Cotrufo.—p. 202.
Modifications of Certain Biologic Properties of Eberthella Typhi in Relation to Culture Terrain. G. Martini and P. Visconti.—p. 223.

Action of Colloidal Carbon on Immune Reactions.

David gave intravenous injections of colloidal carbon to rabbits with experimental staphylococcal infection. He found that the substance does not produce shock and other complications. It acts by stimulating the organic reactions of defense (reticulo-endothelial system), increasing leukocytosis and the phagocytic power of the blood and putting the animal in condition to ward off infection. Hyperleukocytosis takes place within three or four hours after the injection without intermission of hypoleukocytosis (the so-called depressive phase of the leukocytes). As the leukocytes increase in number, their phagocytic activity is also increased.

Influence of Dextrose on Immunity.—Cotrufo states that hypodermic injections of an isotonic solution of dextrose during the course of a specific immunization stimulates development of the general immunity. The powers of agglutination and fixation of the complement of the blood serum increase by the nonspecific action of dextrose. The author's statement is supported by the results of experiments in rabbits in the course of immunization against typhoid. The immune reactions in the rabbits that were given hypodermic injections of dextrose in the course of immunization were increased in comparison to those of rabbits in which immunization without simultaneous administration of dextrose was carried on. According to the author, the results of his experiments show the advisability of administering dextrose alone or with a specific treatment in infections.

Prensa Médica Argentina, Buenos Aires

24: 591-642 (March 24) 1937

- *Intravenous Injections of Charcoal in Puerperal Infection. A. Peralta Ramos and Paulina Pelaez de Biondini.—p. 591.
Fractures of Elbow with Posttraumatic Cubitus Varus: Cases. R. Finochietto and R. L. Ferré.—p. 598.
Skin Reaction to Actinic Rays in Relation to Congenital Pigmentation of Skin. A. E. Roffo.—p. 604.
Histopathogenesis of Inflammation. D. Deza Cenget.—p. 630.

Charcoal in Puerperal Infection.—Peralta Ramos and Pelaez de Biondini resorted to intravenous injections of animal charcoal in puerperal infection. The patients were seriously ill with an endometrial localization of the infection and with or without retention of placenta. In four cases of the group there was septicemia. A daily injection of from 1 to 5 cc. of a 2 per cent solution of animal charcoal in distilled water was administered for six or eight consecutive days. The group included fifteen patients. The four patients suffering from septicemia died. In some cases the injection was followed by intense chills and high fever. In one case the injection was followed by grave shock. The authors conclude that the treatment may give satisfactory results in controlling puerperal infection of moderate intensity. It is not indicated in grave cases.

Archiv für Gynäkologie, Berlin

163: 327-486 (March 5) 1937. Partial Index

- Experimental Study on Influence of Diet with Insufficient Variety on Hepatic Function During Pregnancy. G. Effkemann.—p. 327.
Structure of Female Urethra. E. N. Petrova, C. S. Karaewa and A. E. Berkowskaja.—p. 343.
Significance of Hereditary Factors for Pathogenesis of Hypertension, Particularly of Essential Hypertension During Pregnancy. G. Tsutsumipulos.—p. 358.
Clinical and Pathologic-Anatomic Study on Hypofunction of Thyroid and Female Sexual Function. H. O. Neumann.—p. 406.
*Pregnancy Toxicoses and Tumors: New Points of View in Etiology of Tumors. G. von Bud.—p. 439.
Vitamin C Deficit During Pregnancy. G. Gachtgens and E. Werner.—p. 475.

Pregnancy Toxicoses and Tumors.—Von Bud maintains that the pregnancy toxicoses are caused by focal toxins, for the therapeutic results he obtained with the extirpation of foci corroborate this. He points out that in a paper on convulsive eclampsia he called attention to the effects of focal toxins on the nervous system. Moreover, on the basis of his studies on eclampsia without convulsions, on ileus and pyelitis, and on the basis of clinical observations, he is of the opinion that the cause of puerperal fever is to be found in a disturbance of the nervous system, which in turn is elicited by focal toxins. On this basis could be explained also the diseases of the ovum and of the placenta and the congenital predisposition for disease. Malignant and benign tumors, which developed after some conditions of irritation of the nervous system (eclampsia) and after paralytic-atonic pregnancy toxicoses (ileus and pyelitis), directed the author's attention to the fact that the focal toxins not only exert an irritating effect on the nervous system but may lead also to tumor formation by way of trophic disturbances. He illustrates this possibility with four cases.

Deutsche medizinische Wochenschrift, Leipzig

63: 505-540 (March 26) 1937. Partial Index

- Regional Differences of Normal White Blood Picture. M. Günsler.—p. 505.
*Is Treatment of Pneumonia with Quinine Injections Justified? E. Ballmann.—p. 508.
Differential Diagnosis and Therapy of Palpitation of Heart. F. Schellong.—p. 510.
Cooperation of Diabetic Patient in Controlling Diabetes Mellitus. R. Pannhorst.—p. 513.
*Fluorescence Microscopy of Leprosy Bacteria in Nasal Mucus and in Blood. P. Hagemann.—p. 514.
Treatment of Rosacea. S. Bommer.—p. 518.

Quinine in Treatment of Pneumonia.—Ballmann points out that the injection of quinine permits an energetic attack of the cause of pneumonia without disturbing and moving the patient. At his hospital more than 2,000 patients were given injections of quinine preparations and the number of cases in which complications developed was small. He shows that the injurious effects of the injection of quinine preparations which have been reported in the literature could have been avoided if the necessary caution had been observed. He cites cases in which brachial nerves were paralyzed because inexperienced assistants or nurses had injected the quinine preparation into the arm. Quinine preparations, he says, should be injected by the physician himself and only into the gluteal muscle with a sufficiently long needle. If these rules are observed, the treatment of pneumonia with quinine injections is without danger and, compared to the merely symptomatic treatment, it shortens the disease process and reduces the number of complications and the mortality rate.

Fluorescence Microscopy of Leprosy Bacteria.—Hagemann describes a new method for the demonstration of microbes, particularly for the visualization of the causal organism of leprosy in the nasal mucus or in the thick drop blood preparation. The micro-organisms are stained by means of solutions of fluorescent substances, the so-called fluorochromes, and are then visualized by the fluorescence that develops under the influence of ultraviolet irradiation, under the special microscope. In order to detect leprosy bacilli, the specimen is treated for fifteen minutes with an aqueous solution of berberine sulfate containing phenol; then it is washed for from ten to fifty seconds with hot water (from 60 to 70 C.) and examined under the fluorescence microscope. The bacilli appear as yellow to green luminant rods, which stand out in contrast

to the weaker fluorescing background. The author concludes that this method of demonstrating the organisms is in many respects superior to others. Moreover, fluorescence microscopy can be used also for the demonstration of tubercle bacilli, trypanosomes, plasmodia and so on.

Zeitschrift für Tuberkulose, Leipzig

77: 161-240 (March) 1937

Statistics on Success of Sanatorium Treatment of Tuberculous Patients. K. Zacharias.—p. 161.

Several Forms of Meningitis. B. A. Photakis.—p. 177.

*Unilateral Honeycombed Cavity of Lung on Bronchiectatic Basis. K. Sixt.—p. 184.

*Quantitative Evaluation of Tuberculosis from Functional Blood Picture. O. H. Bucher.—p. 189.

Unilateral Cavity of Lung on Bronchiectatic Basis.—Sixt reports the clinical history of a young woman who for several years had received treatment in hospitals and sanatoriums on account of suspected open tuberculosis. However, on the basis of the long previous history, the extensive and unilateral pulmonary process in the presence of a relatively favorable general condition, the always negative sputum examination, the twice negative animal experiments and the outcome of the contrast substance filling tests, the pulmonary disorder was finally recognized as extensive bronchiectatic cysts of the right upper lobe with atelectasis and pleuritic changes in the left lower lobe. Tuberculosis could be excluded. Syphilis, which also occasionally produces aspects similar to those observed in this patient, could be ruled out on the basis of negative serologic reactions and of the absence of syphilitic symptoms. The author says that he reported this case not only because it is interesting, but particularly to stress the necessity of a thorough and careful examination before a patient is placed in a hospital or sanatorium for tuberculous patients.

Evaluation of Tuberculosis from Blood Picture.—Bucher thinks that the quantitative and qualitative changes in the leukocytic blood picture, which were investigated by Arneth, Schilling and others, may be regarded as a definitely established morphologic entity and maintains that they are suitable for the diagnosis of the tuberculous process from the blood. He points out that Hoefflin and Stanley succeeded in demonstrating in experiments that by counting the monocytes and the neutrophils with nonsegmented nuclei it is possible to estimate the intensity of a tuberculous infection. This idea of Hoefflin has greatly promoted the further development of the diagnosis from the blood picture. It has been determined that the neutrophils with segmented nuclei and the lymphocytes are biologically complementary. The sum of these two cell groups was utilized by Hoefflin for a geometric formula. After explaining this formula, the author says that he used it on the material of his clinic during the last two years and was able to corroborate the observations Hoefflin made on tuberculous cattle. The method makes it possible to determine (1) that a person never has had biologic contact with tubercle bacilli, (2) that a person is sensitized to tuberculin after the tuberculous foci have disappeared, (3) that a person has a passive tuberculosis and (4) that a person has active tuberculous foci, no matter whether the tuberculin reaction is negative or positive. The formula is also helpful in determining the prognosis and in estimating the efficacy of therapeutic procedures.

Wiener medizinische Wochenschrift, Vienna

87: 289-316 (March 13) 1937

Impairment of Skin by Occupations, Sports, Seasons and Cosmetics. M. Oppenheim.—p. 289.

Gastro-Intestinal Tract and Skin. E. Urbach.—p. 292.

*Form of Athletic Heart in Roentgenogram. V. Erdélyi.—p. 294.

Methods of Fever Therapy. K. Nowotny.—p. 295.

Athletic Heart in Roentgenogram.—Erdélyi studied the changes in size and shape of the heart in students who had undergone intensive physical training. He agrees with the majority of investigators, who consider the "athletic heart" a physiologic variant that develops in case of increased activity. He found that the hearts the size of which had temporarily or permanently increased as the result of intensive training in

sports show great differences in shape. These differences are dependent on a number of factors, such as the shape of the thorax, the position of the heart and the changes in the tonus of the cardiac muscle. For instance, a heart that has a median position in a rather narrow and long thorax becomes more spherical in the course of enlargement. In a wide short thorax, however, the hypertrophy is more in the transverse direction and results in an aortic form. Between these two there are of course numerous intermediate forms. The author further explains the relationship between changes in the tonus of the cardiac muscle and the configuration, pointing out that in case of hypotonia the heart often appears pointed, whereas otherwise it is well rounded. He reaches the conclusion that there is no change in size or form of the heart that is characteristic for "athletes' heart" and that the roentgenogram alone cannot serve as basis for the diagnosis of "athletes' heart."

Polska Gazeta Lekarska, Lwów

16: 291-310 (April 18) 1937

Danger of Trachoma Epidemicity: Necessity of Government Aid to Combat Epidemic. E. Godlewski and K. Majewski.—p. 291.

Effects of Surgery on the Adrenals. Z. Dziembowski.—p. 293.

*Unapparent Chronic Pancreatitis. J. W. Grott.—p. 296.

Physiologic Irregularities of Pulse and Respiration. W. Tomaszewski.—p. 300.

Unapparent Chronic Pancreatitis.—Grott says that he has collected 100 cases of unapparent chronic pancreatitis in about two years, not including the cases which he could not verify with the following four points: possibility of diseased pancreas with complication of other organs, careful palpation of the region of the pancreas, search for sugar in the urine two hours after consumption of 50 Gm. of dextrose, and determination of the diastase of fresh urine. Among the 100 cases diagnosed as unapparent chronic pancreatitis there were forty male and sixty female patients, ranging in age from 20 to 70 years. There were liver disease complications in 56 per cent, general debility in 46 per cent, rapid loss of weight in 31 per cent, thirst in 16 per cent, pain in the side in 15 per cent and various other symptoms with insignificant percentage, such as itching in different parts of the body or the genital organs, ulcer of the duodenum and salivation. The treatment of chronic pancreatitis is often long drawn out: the first step is to remove the cause of the pancreatic disease and of that of the other organs. The most important item in the treatment is insulin, once or twice a day, each dose not to exceed 10 units.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

March 15, 1937 (No. 5) Pp. 321-400. Partial Index

Improved Medical Aid to Women—Mothers. D. A. Glebov.—p. 321.

Essence of Immunity. G. D. Belonovskiy.—p. 325.

*Tuberculous Peritonitis in Children. N. V. Shwartz.—p. 331.

Treatment of Tuberculous Peritonitis with Large Doses of Calcium Chloride. T. Z. Gurevich.—p. 341.

Method of Combating Mycotic Diseases of Childhood. V. N. Levitan.—p. 343.

Choice of Incision or of Tonsillectomy in Peritonsillar Abscess. T. I. Gordyshevskiy.—p. 352.

Tuberculous Peritonitis.—According to Shwartz, there were admitted from 1925 to 1934 eighteen cases of tuberculous peritonitis to the pediatric section of the Tuberculosis Institute of Leningrad. Among 9,078 cases in which treatment was administered for various surgical conditions at the Raufhus Children's Hospital in the course of seven years there were only seventeen cases of tuberculous peritonitis. The author is skeptical about the enterogenous origin of tuberculous peritonitis. He believes that in the great majority of the cases the primary focus is in the lungs. Tuberculous peritonitis is always secondary to tuberculosis of some other organ or tissue. It is seen most frequently as a concomitant lesion of the secondary stage of pulmonary tuberculosis, resulting from a lymphogenous or hematogenous dissemination from the primary focus. The most frequent sources in order of their importance are the lung and the peribronchial and mesenteric lymph node tuberculosis. In children the principal part of the tuberculous infection is represented by lung tuberculosis. The onset of tuberculous peritonitis in children is not infrequently stormy, with acute abdominal pain and high fever. Such cases are not infrequently confused with acute appendicitis, abdominal typhus and diplococcus peritonitis in girls. The author attaches much

importance to the study of the peritoneal fluid obtained by paracentesis in making a differential diagnosis. High specific gravity, high albumin content and the presence of lymphocytes differentiate an exudate from a transudate. The Gohn-Löwenstein method of culturing the peritoneal fluid on the newer mediums, such as the Pettrignani milk-egg medium, yields a much higher number of positive results in finding Koch's bacilli than the older methods. General hygienic-dietetic treatment occupies the most important position in the treatment of tuberculous peritonitis. Operation is indicated in exudative forms when the conservative measures fail. The results are frequently quite favorable. It is, however, advisable to follow the laparotomy by a general treatment preferably of the climatic-sanatorium type. One should abstain from operating on nurslings, as the results are invariably bad. In adhesive and ulcerative-casating types, the operation is indicated only when signs of increasing intestinal obstruction, of an acute peritonitis due to perforation of the intestine, are present, when the diagnosis is not clear and when cancer is suspected. The author applied the pneumoperitoneum method of therapy in several cases without, however, noticing any favorable results. Tuberculin treatment was not effective. Heliotherapy and other methods of irradiation, such as the quartz lamp, constitute a valuable adjunct and are indicated in cases in which the general state of the patient is fair and the pulmonary lesion is not far advanced.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81: 1217-1288 (March 20) 1937

Injuries of Menisci of Knee Joint. E. Hustinx.—p. 1218.

*Pseudo-Atrophy of Optic Nerve in Young Infants. K. T. A. Halbertsma.—p. 1230.

*Trigger Finger in Young Children. R. J. Harrenstein.—p. 1237.

Habitual Abortion: Case. J. P. Asjes.—p. 1242.

Aseptic Necrosis of Head of Humerus. P. M. E. E. Nijst.—p. 1243.

Pseudo-Atrophy of Optic Nerve in Young Infants.—Halbertsma reports the clinical history of a girl infant, 8 weeks old, who was brought to him by the parents with the complaint that the eyes had a peculiar staring expression which had made them fear that the child might be blind. The ophthalmologic examination revealed an abnormal behavior of the pupils and a peculiar coloration of the optic papillae. On the basis of another examination that was made three weeks later, the disorder was diagnosed as pseudo-atrophy of the optic papillae probably resulting from retarded myelinization of the pupillomotor fibers of the optic nerve. Several successive examinations disclosed a gradual improvement in that the pupillary reactions became more normal and the peculiar coloration of the papillae began to disappear. The author points out that this case corresponds to the description of pseudo-atrophy of the optic nerve in the new-born, which was given by Beauvieux in 1926. He also cites the signs which, according to Beauvieux, differentiate pseudo-atrophy of the optic nerve from the true congenital atrophy of the optic nerve.

Trigger Finger in Young Children.—Harrenstein points out that the so-called resilient, springing or trigger finger is characterized by a sudden arrest of the flexor and extensor movements of the finger. Palpation of the finger occasionally reveals a small swelling in the tendon at the metacarpophalangeal joint. The cause of the thickening of the tendon is unknown. The histologic examination of tissue specimens that were removed during operations revealed various changes. The treatment consists in rest and fixation of the finger on a splint or in forced stretching exercises with or without massage, warm baths and heat treatment. In some cases these measures are effective, but in others surgical treatment becomes necessary. Opening the narrow tendon sheath and removal of the thickening counteracts the difficulty. Thus the prognosis is comparatively favorable. The author further directs attention to the fact that the so-called trigger finger is often observed in young children. In these it is usually the thumb that is involved, often on both sides, whereas in adults the middle or ring fingers are most frequently affected. The author observed the disorder in twelve children, four girls and eight boys. The parents usually observed the defect when the children were between 1 and 2½ years old and without there

having been an injury. Conservative treatment was always tried first. After first stretching the thumb, it was fixed on a metal splint. When this rest treatment gave no improvement, the parents were told to stretch the thumb several times each day. Some of the cases were cured by these conservative measures, but in four cases surgical treatment had to be resorted to. In two cases a cartilaginous thickening of the tendon could be demonstrated as the cause of the disorder.

Ugeskrift for Læger, Copenhagen

99: 319-354 (March 25) 1937

*Acro-dynia (Pink Disease). P. Plum.—p. 319.

Id.: Case. C. Friderichsen.—p. 325.

*Fibrous Mediastinopericarditis (Fibrous Pericarditis) with Especial Regard to Surgical Treatment. D. Bøggild.—p. 328.

Acro-dynia.—Plum states that more than 2,000 cases of acro-dynia are known. The disease occurs almost exclusively in children up to the age of 14. The patients are usually from families in good circumstances. At the onset the child sits quietly or lies with his head in his pillow, is irritable, lacks appetite, has itching fingers and toes, and is thirsty, sleepless at night and dull by day. As a rule the noticeable pink color of the hands and feet appears about the fourth week. Occasionally an eruption may precede, with development of large white blisters, which break and lead to peeling. Other symptoms include pronounced perspiration, salivation and tear flow, falling hair, and possibly necrosis of the gingiva and finger tips. The temperature is normal, the pulse is greatly accelerated, the blood pressure may be increased. In the less typical cases, differential diagnosis with regard to simple anorexia and tuberculosis may be difficult. The picture in arsenic poisoning and ustilaginism resembles that in acro-dynia. Acro-dynia differs from pellagra in the absence of lines of demarcation, digestive symptoms, diet deficiency and history of pellagra in the family, and in the uniform age of the patients. The Woods found that in sixty-two cases the average length of time before improvement was twelve weeks. Angina, stomatitis, bronchitis, pneumonia, pyelitis and gastro-enteritis are complications. A mortality of from 5 to 10 per cent has been noted. Pneumonia is often the cause of death, but in some cases death is due to the disease itself. The course of the disorder is not influenced by diet, vitamin treatment, light, physical procedures or medicaments. The characteristic pathologic changes apparently consist of extensive but slight degenerative processes and slight inflammatory changes in the entire autonomic and somatic nervous system, except the cerebral cortex. A common specific etiology has not been determined. The picture of acro-dynia, erythredema, trophodermatoneurosis or pink disease presents such uniform symptoms and so uniform a course that the disease is justifiably regarded as a well defined entity.

Fibrous Mediastinopericarditis and Surgical Treatment.—In both cases reported there was an exudative tuberculous pericarditis. In the second case the possibility of empyema of the pericardium led to exploratory pericardiectomy, which resulted in the bacteriologic diagnosis of bovine tuberculosis. Bøggild says that fibrous mediastinopericarditis occurs chiefly toward the end of childhood and in early adult life but may occur at any age except early and late. About one third of the cases are due to tuberculosis, about one third to rheumatic infection and the remainder to other known or to unknown causes. An exudate in the pericardium causes distention of the posterior part of the pericardium, resulting in compression posteriorly of the left lung. Stethoscopic signs of this were seen in the two cases. Heart embarrassment due to the exudate may cause liver stasis and ascites. Ascites is hastened after the acute phase and the fibrous changes, with atrophy, produce a mechanical obstruction. Both cases belonged to the concretio type. Cardiolytic, according to Schmiedeknecht, was done in the first case and Brauer's operation in the second. The author states that the operative treatment was undoubtedly life saving. The prognosis depends largely on the causative infection. The best results are attained in slowly developed cases. Intrapericardial pericardiolytic with pericardial resection is the procedure of choice. Operation should be performed before the heart musculature is too much affected.

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THE ADVANCEMENT OF MEDICAL EDUCATION

PRESIDENT'S ADDRESS

J. H. J. UPHAM, M.D.
COLUMBUS, OHIO

As I look back on forty years of medical practice I realize that I have lived in a period of medical progress greater and more rapid than any that has ever previously occurred in the world's history. Johns Hopkins Hospital, where for two years I was assistant resident, had opened its doors just five years before I came there. At that time it was considered the last word in hospital construction. Under the leadership of that remarkable quartet composed of Kelly, Halstead, Welch and Osler it stood at the peak of medical science and medical practice in our country. Howard Kelly, with his marvelous dexterity and operative skill, inventive genius, exploring the bladder and catheterizing the ureters, the only man in the country able to do so at that time, was easily the leading gynecologist of the United States if not the world. Thomas Halstead with his great contributions to surgery, surgical pathology and surgical technic was an outstanding leader in his field. William Welch, of beloved memory, had already made many great contributions to the knowledge of pathology. Of even greater worth, he brought pathology from the laboratory and necropsy room to the bedside and made it an integral part of clinical teaching and clinical practice. And there William Osler, often called the greatest of modern physicians, gave some fifteen of the most productive years of his life. Great as a medical scientist and clinician, he seemed greatest as a teacher and a source of inspiration to other physicians. Like the immortal Johann Müller, he inspired all assistants and students with whom he came in contact.

As I look back I try to visualize the modern intern, and indeed the modern hospital staff as well, were they compelled to work under the conditions existing then in the leading medical institutions in the country. I believe they would be quite at a loss or even helpless. In addition to the history taking in a ward of twenty-eight beds and assisting in the operating room, the assistant resident was required to do all the clinical laboratory work for his ward. This sounds much more than it implies today, however. The laboratory contained for routine work merely some test tubes, Fehling's solution, nitric acid and the stains for the tubercle bacillus. Occasionally one used the bromine test for urea and the fermentation test for urinary sugar. Occasionally also we used the hemoglobinometer and counted the red and white blood cells, but our results were often

haphazard. Thayer had just been doing his work in the fertile malarial districts around Baltimore, so that we looked for and not infrequently found the elusive plasmodium. Ehrlich had just announced his early experiments with blood stains, and with his long copper drying bar and triacid stain we often produced results fearful to behold. We knew the more common pathogenic bacteria and tested for them on our own laboratory made mediums.

The laboratory was without technicians, blood chemistry, agglutination tests, blood typing, determination of liver or kidney function, and Wassermann and tolerance tests. Above all there were no x-rays. One winter day I read on the bulletin board the announcement that a distinguished American professor of dentistry would give a lecture that afternoon in the hospital amphitheater. After an interesting and informal talk, he passed around a half-dozen glass photographic and crude plates, which had been given him a month or so previously by his friend one Professor Roentgen. These were the first x-ray plates brought to this country. There was no seer among us to prophesy what this seeming scientific curiosity was to mean to dentistry and medicine!

In those days there was no knowledge of insect-borne diseases, food deficiency diseases—except perhaps scurvy—vitamins, endocrines, hormones, insulin, virus diseases, the electrocardiogram, allergy, serology, standardized drugs and other innumerable improvements of modern therapy. These are the harvest of the last forty years. The average modern medical student tries to acquire them in four hectic years of forced mental feeding. Some were taught ten, twenty or thirty years ago. Whatever the date of graduation, however, the newly pledged doctor is a perishable article sold under a guaranty that is good only on that date. There is not even an expiration date as on vaccine or serum. In a few months, certainly in a few years, unless he keeps up with the march of progress he lags behind.

The graduate of ten or twenty years ago has had to add to his basic information as much as he acquired in his college course; if not more. Legally when he receives his license to practice he is a finished product; actually he has just made a fair start in his educational life. His future progress under present conditions is a matter entirely of his desire for self improvement and personal initiative, stimulated by ambition or financial self interest. That so many of those in practice do keep well abreast of the march of progress is a gratifying tribute to the spirit of our profession. The fact that some do not progress is a matter of great concern and a subject for serious consideration.

POSTGRADUATE EDUCATION

There are four main procedures by which postgraduate self education is attainable: First by personal experience and clinical observation—the method of

President's address before the American Medical Association at the Eighty-Eighth Annual Session, Atlantic City, N. J., June 8, 1937.

Hippocrates, Galen and Sydenham. This should be the habit of every physician as an underlying part of his program.

Second, training in postgraduate colleges. This is mainly directed toward the development of education in the various specialties and, while excellent, affects only a relatively small percentage of physicians.

Third, through medical publications. We have more and better medical publications today than are available in any other country in the world. For this the American Medical Association is largely responsible by setting up standards in every field and thus aiding the advancement of general and specialized knowledge. The existence of so many of our publications is definitely a response to the widespread demand for the latest medical information.

Fourth, through medical society meetings. For centuries it has been the habit of physicians to assemble from time to time to discuss mutual problems, relate experiences of medical practice and announce new discoveries. In the early days of this country this practice was followed in the better settled areas. Many medical societies have already celebrated the one hundredth anniversary of continuous existence. Ninety years ago the American Medical Association was founded to organize the medical profession on a national basis, correlate the activities of the constituent societies, and present at its annual meeting the latest developments of medical progress.

In the county society there is the opportunity for all members to report cases and present papers on medical subjects. Guest speakers add to the value and interest of the programs and increase their educational value. A by-product of this plan of organization has been the great improvement in the mutual relations of the local members. The regular meetings of county medical societies have led to better acquaintance and mutual respect between the members; friendliness and cooperation have replaced enmity and discord, to the great gain in the quality of local medical practice.

The annual meetings of the state medical associations represent a higher grade of postgraduate instruction. The excellence of the scientific programs and the high quality of the discussions at these meetings indicate how they are meeting their responsibilities. In forty states last year the average attendance was 38 per cent of the membership.

The highest grade in our organization educational scheme is the annual meeting of the American Medical Association with its splendid programs of scientific papers and technical discussions covering every department of medicine. Annually from 5 to 8 per cent of our entire membership attends these meetings. And yet the medical meetings I have mentioned are merely the beginning. In every large city and in many states there are sectional and special societies holding frequent meetings. In the latest American Medical Directory 140 national and sectional societies are listed, and to these must be added the almost countless hospital staff meetings throughout the country.

The Council on Medical Education and Hospitals lists 6,189 approved hospitals, each of which is supposed to hold a monthly staff meeting for ten months of the year. It is staggering to contemplate the grand total of all these meetings. Here certainly is definite proof of the urge for self improvement of the members of our profession. The multiplicity of meetings, however, has become a burden. Conditions are chaotic and the problem merits serious consideration.

Several years ago, programs of postgraduate study were organized for the use of county societies with weekly outlines published in *THE JOURNAL*. Some good resulted but in general this scheme failed because of the lack of leadership and trained individuals in the various areas to oversee and carry out the courses. In some states in the last few years, efforts have been made to carry on this sort of instruction through the cooperation of medical colleges and state associations. Systematic courses in the newer developments of medical science with their application to general practice have been carried to strategic points in their states by traveling groups of trained clinicians and medical teachers. In this way large numbers are reached with a minimum of effort and loss of time.

Our best argument against the establishment of foreign schemes of socialized medicine is continued maintenance of the high plane of medical practice in this country. A large percentage of lagging members constitutes a beam in our professional eye.

There is already a trend toward compulsory evidence of postgraduate improvement. At first there was merely moral suasion in the requiring of evidence of fitness by passing examinations for admission to membership in the various national special societies. A second step has been taken in the recognition of such membership in the classification of specialists in the American Medical Directory. In several states there are laws requiring annual registration of physicians. While, apparently, not utilized to any extent as yet, the authority is seemingly present to weed out undesirables such as narcotic addicts and those guilty of criminal offenses. There is the possibility that the next step might be a requirement for renewal of licensure through evidence of familiarity with the developments in medicine by five or ten year periodic examinations.

THE COUNCIL ON MEDICAL EDUCATION

The Council on Medical Education and Hospitals in the last thirty years has done a monumental service to medical education and the public. As the chairman, Dr. Wilbur, said in his address before the Congress on Medical Education and Licensure last February, "The record of thirty years shows that the Council on Medical Education, exercising an effective and impartial supervision over the training of physicians, has brought about an advance unparalleled in the history of education." In its first inspection and grading of medical colleges it did much to remedy a situation that was a reproach and indeed a scandal to the name of medical education. In its second inspection of the last two years it has carried on that work in logical sequence and further advanced the standards of our colleges so that they compare favorably with any in the world.

In its inspection of hospitals and the institution of standards for intern training it has initiated a definite program for providing the public with thoroughly qualified practitioners. From that time on, however, the practitioner is left largely to his own devices and his personal initiative as to his future development.

This council has no legal status or statutory power of enforcement, but by support of medical opinion and the publicity given its reports in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* it was able to reduce the number of 186 medical colleges, some good, many bad and the remainder indifferent, to seventy-five of acceptable quality. Much the same result has been apparent in the eager efforts of hospitals to meet the standards of an "approved" hospital. Such a response is a tribute to its wise judgment and a recognition of its

authority. Lest, therefore, there arise a demand from without our ranks for an "approved practitioner," the American Medical Association should of its own initiative study the present situation and take measures to forestall such an eventuality.

MEDICAL MEETINGS

It is evident from the number of medical society meetings at present being held, the excellent attendance reported generally and the great number of medical publications supported by our members, that the majority of the medical profession of this country is alive to the need of continued education and is seeking voluntarily to take advantage of the opportunities presented. It must be admitted, however, that a small percentage does not attend medical meetings and does little to keep up with medical progress. The good name of our profession suffers from such an attitude of even a relatively small group, and here lies a challenge to our organization.

Isolation and the lack of accessibility of meeting places are often valid excuses for much of this non-attendance. To meet this, I would urge a comprehensive study of the traveling postgraduate courses already in operation in some states with the idea of a more general and systematized development of such a plan. From an extensive acquaintanceship with practitioners I am confident that, if such educational opportunities were thus made available at accessible points, the response would be prompt and encouraging. In such efforts, however, there should be careful selection of a well balanced and well presented program, considerations too often lost sight of unfortunately in many of our meetings. Highly scientific or technical papers are of great value but should be restricted to audiences that can comprehend them, or couched in language understandable to the average listener, and with an emphasis on the application to medical practice. In all meetings, whether of the suggested traveling postgraduate or the regular county, state or national societies, more definite consideration should be given to the majority of the attending audience in arranging programs and in the method of presentation to the end that the programs may be more attractive and that the greatest good may be gained by the greatest number.

In this the American Medical Association may assume a scheme of leadership and guidance that will demonstrate that it has a definite plan of medical education not only for the undergraduate and the intern but also for all its members throughout their entire period of medical life expectancy. The result will be a better profession, a more united front with better service to the public and a greater progress of medical science. With such a scheme of activity in these days of medical and economic unrest, our medical conscience may be reassured and all may take hope that American medicine will show to the world the highest standards of medical science and medical practice.

And so may be fulfilled that whimsical dream of William Osler as recounted in his "Vienna Revisited" in *THE JOURNAL* of May 9, 1908. He pictured a fancied interview with Minerva Medica; how she fled because of changing conditions from Greece to Italy, to France, Holland and Germany, and, when he invited her to cross the Atlantic and set up here her temple, she replied: "Give me the temples, give me the priests, give me the true worship, the old Hippocratic service of the art and of the science of ministering to man, and I will come. By the eternal laws under which we gods live I would

have to come. I did not wish to leave Paris, where I was so happy and where I was served so faithfully by Bichat, by Laënnec and by Louis"—and tears filled her eyes and her voice trembled with emotion—"but where the worshippers are the most devoted, not, mark you, where they are most numerous; where the clouds of incense rise highest, there must my chief temple be, and to it from all quarters will the faithful flock. As it was in Greece, in Alexandria, in Rome, in northern Italy, in France, so it is now [or was] in Germany, and so it may be in the new world I long to see."

PROFESSIONAL FREEDOM AND SOCIAL RESPONSIBILITY

CHARLES GORDON HEYD, M.D.

NEW YORK

In every age and in every cultural order, the doctor has existed and maintained himself in spite of war, catastrophes and revolution. He lived and practiced his art during the decline and fall or even the complete annihilation of previously existing states of civilization. From remote times the doctor has enjoyed complete professional freedom and has thereby assumed great social responsibility.

Through the centuries, fundamental discoveries made by practicing physicians have changed the whole current of life. Vaccination against smallpox, the discovery of the bacterial causes of disease, the development of the stethoscope, the cystoscope and other instruments of precision and the x-rays, the discovery of the specific effects of certain medicaments, such as vitamin therapy in deficiency diseases, liver therapy in anemias, and insulin in diabetes, have all given to many human beings increased years of greater usefulness. These discoveries were made by physicians without any monetary remuneration or any expectation of personal advantage. These significant contributions have made possible a lessening of disease, increased longevity and incalculable relief from suffering. Humanity has benefited probably more from the contributions of physicians than it has through the mastery of man's environment by the discoveries in the physical sciences. Humanity has benefited in a social sense more by the work of physicians than it has by inventions in government.

Mass methods in medical practice are definitely approaching an end. Certain diseases, such as typhoid, diphtheria, syphilis and malaria, lend themselves to mass control by the sanitary engineer and technician. But the practitioner of medicine in the future will be employed largely in a more personal relationship to disease. We are slowly developing a society in which old age with its degenerative conditions will represent a constantly increasing percentage of disease. The United States by 1960 may have a stationary population, and the leading causes of death and physical disability will be in the degenerative group of disease. One out of four or five of the population will be over 60 years of age, and heart disease, cancer, nephritis, pneumonia, accidents and apoplexy will move up as the chief causes of death. Medical practice will require a more personal service, a more extensive control, and, I believe, will require more physicians to take care of them.

Address of the retiring President delivered before the American Medical Association at the Eighty-Eighth Annual Session, Atlantic City, N. J., June 8, 1937. Dr. Charles Gordon Heyd succeeded Dr. James Tate Mason, who died June 20, 1936.

Largely by reason of our individualism and the fact that we explored and developed a virgin continent with the spirit of the pioneer, the United States has had a better health record than obtains anywhere else in the world. The final analysis of the social intelligence of a people will rest on their health program. Wherever we survey a typical death-producing disease and its effect on the community, we find that the record of the United States is superior to that in countries with either a socialized medical system or compulsory health insurance. The final appraisal of our national well being will rest on mortality statistics.

There are certain portions of the United States where it is impossible under present conditions to provide any fair degree of medical service. Until the levels of these backward areas are elevated culturally, physically and intellectually by more education, by proper housing, by adequate nourishment, by better protection against climatic and endemic disease, it will be futile to expect a medical service comparable to that in the most intelligent, advanced and socially minded states of the Union. In certain areas less than 10 cents per capita is spent annually on public health, as compared to \$2.85 per capita annually in our more advanced states. A single example will suffice: Until the diet of certain groups of people has been brought up to a vitamin maintenance level by increasing their earning capacity and by education, it would be foolish to talk about adequate medical and dental services.

What a fallacy! To assume that all the people at all times, under all conditions, can receive what is so glibly spoken of as "adequate medical service" or even as the "best of medical care." It is impossible to make people of ordinary average intelligence look after themselves. It is notorious that there is more delayed medical attention among employees and nonprofessional staffs of hospitals than those outside the hospital field. What a flight from reality to suppose that we can make any effective inroads on the recalcitrance of human nature when we have 16,000 chiropractors, 7,600 osteopaths, 2,500 naturopaths and 10,000 Christian science healers taking \$125,000,000 a year from the American people for unscientific or one track systems of healing.

America is confronted with the following social conditions: increase in population, a tremendous increase in the number of highly educated citizens, an increasing mechanization of life with urban condensation, a shift from the agrarian to the industrial form of life, gigantism in industry and hospitalization, a change in the concept of government and finally the political power of masses.

Increased morbidity, with more hospital days, is the inevitable consequence of assuming a compulsory health insurance scheme. It is impossible to set up any state system of medicine or compulsory health insurance without creating a class of bureaucrats whose self interest maintains them in office. These possess the poisonous virus of all bureaucracies—an insatiable desire for increased power. The maintenance of this bureaucratic personnel is a permanent obligation of society in good times and in bad times. There follows from above downward a diminishing spiral of effectiveness: (1) the bureaucracy that administers the scheme, (2) the patient who receives the services and (3) the doctors who render the service. More and more of the tax dollar goes to the upper segment and less to the lower. The constantly increasing cost of administration is offset by less and less service to the patients, decreas-

ing remuneration to the physicians and a rapid continuing deterioration in the quality of medical services.

Modern medicine may be divided into two major domains: one is the scientific phase represented by the utilization of all discoveries that can be applied to the alleviation of human suffering or the banishment of disease. These discoveries in medical science have been made throughout time but reached their most startling importance in the last fifty years, when man obtained the mastery over his environment by discoveries in the field of physical science.

The second aspect of medical practice is that scientific data must be correlated, applied and distributed. This is the art of practice and in it there is a surprising difference in abilities and in technic. It is said that Jenner was not a noteworthy physician, yet he gave humanity an epochal discovery. Robert Koch was an indifferent therapist but became a scientist with the discovery of the bacterial origin of disease.

There is today a large bulk of scientific medical measures that must wait until the level of intelligence of the people is prepared to accept them. As indicating the tremendous gap between scientific accomplishment and its clinical application, one may recall that there were "not half a dozen clinical thermometers employed in the largest Union army throughout the Civil War"; yet this was 250 years after the discovery of a means of recording changes in temperature.

In 1905 Schaudin discovered *Spirochaeta pallida* and in 1906 Wassermann introduced the serum diagnosis of syphilis; in 1910 Ehrlich and Hata discovered arsphenamine; yet only in 1937 has the word "syphilis" been permitted on the radio. The eradication of syphilis has been possible during the past twenty-five years.

The quality of medical services depends on medical education. Medicine has evolved in the United States in the last 150 years from the circuit rider with saddle bag, through the preceptor stage, to the medical school with its premedical requirements. Conspicuous in the advancement of medical standards has been the Council on Medical Education and Hospitals of the American Medical Association, which began in 1905. It has led in the development of a public sentiment for the eradication of the proprietary and incompetent medical schools and an increase in premedical education. It has inspected medical schools and hospitals and approved the latter for interns and residence appointments. It has created a mechanism for approving boards to certify to the competence of specialists.

In response to the needs of the time, the American Medical Association is to make a survey and coordinate all the graduate and postgraduate facilities of the United States so that these in turn may be the means of increasing the qualifications of physicians for more effective and better medical service to the community.

The quality of all social services rests primarily on character, and the relationship of the doctor to the community is based on the ethics of the medical profession. Critics of medical organization sardonically suggest that the Code of Ethics is to protect the so-called vested rights of the physician in sickness. Nothing is more erroneous. The Code of Ethics is for the protection and benefit of the public.

Medicine has the properties of a living organism. It is dynamic and evolves with the spirit of the times. Every society throughout history has formulated an ideal of medical service. From about 1800, medicine changed from its disparate existence and became a responsible mechanism of society. One may hopefully

anticipate that in this country there shall emerge a progressively advancing type of medical education and medical services which may be called the American system. The science of medicine and the art of medical practice must retain its freedom and professional liberty. The medical profession "does not rely on endowment but on its own exertions directed to meeting human wants. There is no great profession which has so little to say to the public purse and which so moderately and modestly dips its hand into that purse. It is not only in the interest of the public, but of the profession itself, that it is eminently self supporting. Rely upon it: the principle of self support does much to maintain its honor and independence, and to enable it to pursue its stately march in the times that have come and in the times that are coming, to form its own convictions, to act upon its own principles without fear or favor, for the general benefit of mankind."

THE INCIDENCE OF TRICHOMONADS IN THE VAGINA, MOUTH AND RECTUM

EVIDENCE THAT VAGINAL TRICHOMONADS DO NOT
ORIGINATE IN THE MOUTH OR INTESTINE

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AND

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PHILADELPHIA

Until it has been definitely proved whether or not trichomonads from one source may survive and multiply in other organs, the possibility of auto-infestation remains an important factor in the prevention and treatment of trichomonad infestations, especially the common clinical entity trichomonas vaginitis. The probability of autotransmission depends, however, on the incidence of the organisms in the suspected foci, while the percentage of multiple infestations may be considered as an indication of the extent to which it has occurred. Although the incidence of *Trichomonas* has been reported by a number of workers, we are not aware of studies of the incidence of trichomonads from these three sources in any one group of individuals.

In the present investigation such a study was undertaken among a group of 200 women. All the available laboratory methods of diagnosis, including examination of the fresh specimen by wet smear and stained preparations as well as culture methods, were employed and their relative efficacy noted. Cultural differences indicating pertinent physiologic distinctions among the trichomonads from human hosts are also described.

MATERIALS AND METHODS

One hundred consecutive white and an equal number of colored women attending the antepartum and postpartum clinics of the department of obstetrics at Jefferson Medical College Hospital were studied for the presence of vaginal, intestinal and buccal trichomonads. The technic employed for the collection of material for examination was as follows:

1. *Vaginal Specimens*.—With the patient in the dorsal position the vaginal tract was exposed by means

of a bivalve speculum. A copious sample of the vaginal secretion was collected on a sterile cotton swab and dropped into a test tube containing 2 cc. of sterile Ringer's solution. Only those patients were included in this study who had received no douches or other local vaginal treatment for at least a month prior to the present examination.

2. *Intestinal Specimens*.—Wherever possible a fresh specimen of feces was collected by digital manipulation. The gloved forefinger, lubricated with a small amount of sterile petrolatum, was introduced well into the rectum and with it a small mass of feces was separated from the formed stool and gently worked past the external sphincter to be collected in a test tube containing 5 cc. of Ringer's solution. In thirty-eight instances in which a satisfactory specimen could not be obtained in this manner it was found necessary at a subsequent visit to have the patient defecate in a special cardboard container provided for the purpose.

3. *Buccal Specimens*.—A sterile cotton swab was thoroughly rubbed over the inner and outer surfaces of the entire upper and lower gum lines and into any cavities that were present. This swab was then dropped into a tube containing 2 cc. of sterile Ringer's solution.

All three specimens were taken to the laboratory immediately after their collection, and examinations by the following methods were conducted without delay:

A. *Examination of Fresh Material*: The specimens were well emulsified in the Ringer's solution and a copious sample was carried onto a glass slip by means of a cotton applicator. The slides were thoroughly examined under the low and high dry objectives for the presence of trichomonads.

B. *Examination of Fixed and Stained Preparations*: Several smears of each specimen were prepared on cover slips, fixed for fifteen minutes in warmed Schaudinn's fluid with 10 per cent acetic acid and stained by the iron hematoxylin method. At least two slides from each specimen were examined for a total of ten minutes under the oil immersion objective for the presence of trichomonads.

C. *Examination by Culture Methods*: Although a number of mediums have been recommended for the cultivation of the various trichomonads, it was decided for the purposes of this study to employ a medium that has given general satisfaction for the growth of trichomonads from all three sources studied; namely, 0.4 per cent Loeffler's dehydrated blood serum in modified Ringer's solution (sodium chloride 6 Gm., potassium chloride 0.1 Gm., sodium bicarbonate 0.1 Gm., calcium chloride 0.1 Gm., distilled water 1,000 cc.). Two cultures from each specimen were prepared, each containing 0.5 cc. of the emulsified material in 10 cc. of culture medium. One tube was incubated at room temperature and another at 37.5 C. Cultures were examined daily for at least four consecutive days. When positive cultures persisted only at incubator temperature, their ultimate cultivability at room temperature was determined by repeated subcultures from positive incubator tubes.

RESULTS

The total incidence of trichomonads of vaginal, buccal and intestinal origin (*Trichomonas vaginalis*, *T. buccalis* and *T. hominis*, respectively) is given in table 1, as well as the incidence obtained by each of the three methods of study employed; namely, fresh wet smear examination, stained smears and culture methods.

From the Department of Obstetrics, Jefferson Medical College Hospital.
Prof. David H. Wenrich of the Department of Protozoology at the University of Pennsylvania showed constant interest and gave numerous helpful suggestions during the course of this study.

It will be noted that the total incidence of the vaginal trichomonads (23.5 per cent) is approximately one and a half times as great as that of *Trichomonas buccalis* (16.5 per cent) but almost sixteen times as great as that for the intestinal form (1.5 per cent). The incidence of *Trichomonas vaginalis* in colored patients in this study was almost twice as great as that for the

TABLE 1.—Incidence of Vaginal, Buccal and Intestinal Trichomonads

Source	Positive in Wet Smears	Positive in Stained Smears	Positive in Culture	Total Incidence		
				Entire Group	White Women	Colored Women
Vagina	47, or 23.5%	31, or 15.5%	32, or 16.0%	47, or 23.5%	17.0%	30.0%
Mouth	3, or 1.5%	None	33, or 16.5%	33, or 16.5%	13.0%	18.0%
Rectum	2, or 1.0%	1, or 0.5%	3, or 1.5%	3, or 1.5%	1.0%	2.0%

TABLE 2.—Repeated Studies of Three Patients with Intestinal Trichomonads

Patient	Period of Study, Weeks	Specimens Examined	Positive in Wet Smear	Positive in Stained Smears	Positive in Culture
1	42	12	7	1	11
2	18	9	9	4	9
3	8	4	2	1	4

white patients, while the incidence of the buccal trichomonads was only slightly higher in the colored group.

The total incidence, as determined by a combination of the three forms of laboratory study, did not exceed the incidence as determined by some one of the three methods alone; however, the most efficient method was not the same for the material from the three different sources. Thus, in the case of the vaginal trichomonads the number of positive results determined by the examination of fresh wet smear preparations equaled the number determined by the combination of methods, whereas in the specimens from the mouth and rectum the total number of positive results was determined by the culture methods alone.

The small percentage (1.5) of positive buccal wet smears is indicative of the small numbers of organisms that are generally found in the infested mouth and is further reflected by the fact that none were found on the prepared slides. The easy cultivability of *Trichomonas buccalis*, however, indicates that infestation is present in more than ten times the number of cases in which wet smear preparations alone would lead one to suspect their presence (table 1). On the other hand, the concentration of trichomonads in the infested vagina is usually sufficiently great to make the diagnosis by the wet smear method the most efficient, especially in view of their difficult cultivability. The active motility of trichomonads in fresh preparations is a further factor in accounting for the superiority of the fresh smear method over stained preparations, together with the fact that trichomonads are especially difficult to fix and stain properly.

In the examination of the fecal specimens for trichomonads the culture method gave the highest percentage of positives (three, or 1.5 per cent). In the two instances in which the organisms were seen in the wet smears they were present in large numbers in one instance but were very sparse in the other. Although only three cases of intestinal trichomoniasis occurred,

repeated examinations indicated not only that the culture method was the most reliable for diagnosis but that the trichomonads persisted throughout the periods of observation, ranging from eight to forty-two weeks (table 2). Permanent slides proved comparatively poor for the diagnosis of intestinal trichomonads, whereas Wenrich, Stabler and Arnett¹ found them to be most efficient for the diagnosis of intestinal amebae.

A study of the multiple incidence of the trichomonads from all three sources (table 3) indicates that the degree of correlation is not greater than would be expected from chance distribution alone. Only one woman was positive for trichomonads from all three sources studied. Nine, or 4.5 per cent, of the group were infested with vaginal and buccal trichomonads. Thus, of the forty-seven patients with *Trichomonas vaginalis* nine, or 19.1 per cent, harbored *T. buccalis*, while for the group at large the incidence of the latter form was 16.5 per cent. The patient who harbored all three trichomonads was the only one positive for vaginal and intestinal forms or for buccal and intestinal forms.

The employment of routine culture methods among the present group of 200 women afforded an opportunity for studying the relative cultivability of the three forms of *Trichomonas*.

It is of interest that, although in thirty-two, or 68.1 per cent, of instances of vaginal trichomoniasis the organisms could be cultivated at 37.5 C., none of these strains persisted at room temperature, nor did subsequent subcultures prepared from good cultures become positive when incubated at room temperature (table 4). Although two cultures at room temperature showed a few organisms after twenty-four hours which were probably survivors from the original inoculum, they could hardly be classified as successful cultures. On

TABLE 3.—Multiple Incidence of *Trichomonas* from Vagina, Mouth and Rectum

Positive for trichomonads from all three sources.....	1, or 0.5%
Positive for vaginal and buccal trichomonads	9, or 4.5%
Positive for vaginal and intestinal trichomonads	1, or 0.5%
Positive for buccal and intestinal trichomonads.....	1, or 0.5%

TABLE 4.—Cultivability of Vaginal, Buccal and Intestinal Trichomonads

	<i>T. Vaginalis</i> (47 Strains)	<i>T. Buccalis</i> (33 Strains)	<i>T. Hominis</i> (3 Strains)
Original culture positive at 37.5 C.	32, or 68.1%	33, or 100%	3, or 100%
Original culture positive at room temperature	2, or 4.3%*	10, or 33.3%	2, or 66.7%
Ultimately cultivable at room temperature	None	31, or 93.9%	3, or 100%

* A few organisms survived for from twenty-four to forty-eight hours.

the other hand, of the thirty-three strains of *Trichomonas buccalis* studied all were easily cultivable at incubator temperature; ten strains were recovered from cultures kept at room temperature, while thirty-one were ultimately cultivable at room temperature. All three strains of *Trichomonas hominis* grew well at 37.5 C., two were also positive in the original tubes at room temperature, while the third was later cultivated at room temperature.

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COMMENT

Various opinions are still held concerning the specificity of the vaginal, buccal and intestinal trichomonads in spite of the numerous laboratory and clinical investigations of the problem.

Distinct differences in morphologic characteristics among the three forms have been demonstrated by the careful comparative studies of Wenrich,² and more recently by the investigations of Powell.³ It has been suggested by Andrews,⁴ Lynch,⁵ Dobell⁶ and many others that under similar environmental conditions the species may be identical, apparent distinctions being the result of differences in habitat. Experimental animal inoculations have been advanced by Hegner⁷ and by Dobell⁶ in support of this contention, while the experiments of Kessel and Gafford⁸ and of Bonestell⁹ indicate an organ specificity for the trichomonads of human hosts.

On the basis of inoculations into human hosts Karnaky¹⁰ believes that infestation of the vagina may be produced with trichomonads of intestinal and buccal origin and states¹¹ that these "convert into the vaginal form when transplanted into a trichomonal free vagina," although no criteria or discussion of observations are given to substantiate this statement. We¹² have not been able to confirm Karnaky's results with the intestinal and buccal forms, although we have been able to produce a vaginal infestation with *Trichomonas vaginalis* from culture.

From a clinical point of view, *Trichomonas vaginalis* is the most common as well as the most important cause of human infestation by trichomonads, since the leukorrhea and vaginitis with which it is so frequently associated are generally acknowledged to be caused by the flagellate. The opinion has frequently been expressed by clinicians that vaginal infestation has its origin from intestinal or buccal contamination.

This belief has led to the institution of improved hygienic measures, especially with a view to preventing vaginal infestations after initial local treatment. However, the practice of giving drugs by mouth, as suggested by Bradley¹³ and Karnaky,¹⁴ or of adjusting gastric acidity, as reported by Bogess,¹⁵ not only has little scientific justification but, when such drugs as arsenicals are given,¹³ may be actually dangerous to the patient's health, in addition to removing emphasis from rigorous local treatment. At the very least, exam-

ination for intestinal trichomonads should be made before the treatment of a condition which may not exist is undertaken.

It has been demonstrated in the present study in our clinic, where vaginal trichomoniasis is common, intestinal infestation with *Trichomonas* is rare and even when present is not more frequently associated with vaginal infestation than would be expected from chance distribution. The latter fact is of especial interest because it has been demonstrated that, among the patients harboring *Trichomonas hominis*, the organisms may be repeatedly demonstrated in the feces over a considerable period of time, thus affording ample opportunity for vaginal infestation to occur. In a study of a large number of oriental women Matsuda¹⁶ also noted that there was no tendency for the patient to be parasitized with intestinal and vaginal trichomonads at the same time. The incidence of intestinal infestation among the 200 patients in the present study is in general agreement with those noted for other groups in this climate. Craig¹⁷ estimates that in temperate regions from 0.5 to 1 per cent of individuals examined harbor *Trichomonas hominis*. Hegner and Payne,¹⁸ from a review of thirty-five papers by American, English and French investigators including 20,000 cases, estimate the incidence at 3 per cent. Lynch⁵ believes the percentage in warmer climates and in patients with gastro-intestinal disturbances is considerably higher.

Vaginal auto-infestation with buccal trichomonads has received considerably less attention than has infestation with the intestinal form, although this possibility has been emphasized by Lynch.¹⁹ On this assumption the much higher incidence of the buccal trichomonads as demonstrated in this study, as well as by Beatman,²⁰ Hinshaw,²¹ Hogue²² and others, together with the fact that saliva is commonly used in sexual practices, would indicate that this is a considerably more prevalent source of infestation than would be possible from fecal contamination. Further, it has been pointed out by Bland, Wenrich and Goldstein²³ that morphologically *Trichomonas vaginalis* more closely resembles the buccal form.

From the data of the present study auto-infestation from the buccal source was considered improbable for the following reasons: (a) the comparatively low incidence of buccal trichomonads, (b) their scant numbers even in positive cases and (c) the failure to note any considerable increase in incidence in vaginally infested patients.

It has been generally accepted that cysts or other resistant stages of *Trichomonas* do not exist and consequently that intestinal infestation requires the successful ingestion and gastric passage of the motile forms. This mode of intestinal infestation has been demonstrated by animal inoculation by Hegner²⁴ and by

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Wenrich and Yanoff.²⁵ If successful transference of *Trichomonas* from one source to another is possible, an incidence of intestinal infestation many times lower than buccal trichomoniasis in the same group of patients, as obtained in this study, remains to be explained.

The investigation of the incidence of the flagellates by cultural methods as well as by the direct examination of the specimen by wet smear and stained preparations has amply demonstrated that the highest percentage of infestation is dependent on the method of diagnosis. However, it has been our experience that the culture method alone will reveal buccal and intestinal trichomonads as frequently as will the combined methods, while wet smear examination alone will determine the total incidence of vaginal infestation.

Although good cultures of all three forms of *Trichomonas* have been obtained in various mediums by a number of workers, few reports on the cultivability at room temperature are available. Das Gupta²⁶ cultivated twenty-three strains of intestinal trichomonads in Reno's medium; he was not able to obtain positive cultures at 22 C. or lower. Kofoid and Swezy,²⁷ on the other hand, cultivated *Pentatrichomonas* from feces in 10 per cent serum in Locke's solution with facility at room temperature. *Trichomonas buccalis* was cultivated by Hogue²² at 26 C. and 30 C. as well as at body temperature. Andrews⁴ found that *Trichomonas vaginalis* did not grow at 28 C.

The cultural differences of the vaginal trichomonads as compared with the other two forms, especially the inability to obtain successful cultures of *Trichomonas vaginalis* at room temperature, indicates physiologic differences among the three forms. Indeed, it may be stated with some degree of certainty that a trichomonad from a human source which can be cultivated and maintained at room temperature is not of vaginal origin.

SUMMARY

1. Our study of the incidence of *Trichomonas* from the vagina, mouth and rectum of 200 women employed wet smears, stained slides and culture methods.

2. Vaginal infestation with *Trichomonas* was common, occurring in 23.5 per cent of the group. Buccal infestation occurred in 16.5 per cent of the patients, while intestinal trichomoniasis was comparatively rare, being present in only 1.5 per cent of the women.

3. It was demonstrated that the wet smear method is the most efficient for the diagnosis of *Trichomonas vaginalis*, while the culture method was much superior for the detection of the intestinal and buccal trichomonads.

4. Women harboring vaginal trichomonads did not show an appreciably higher percentage of buccal or intestinal trichomonads than was noted for the group at large. Only one woman (0.5 per cent) harbored all three organisms.

5. Rectal contamination was regarded as an improbable source of vaginal infestation in view of the rarity of intestinal trichomoniasis among women with *Trichomonas vaginitis*.

6. Of three patients harboring intestinal trichomonads, only one was positive for *Trichomonas*

vaginalis despite the fact that the flagellates could be regularly demonstrated in the feces over long periods of time.

7. Auto-infestation with buccal trichomonads was also considered an unlikely source of vaginal infestation because the dual incidence of these organisms was not more than would be expected from chance distribution.

8. A comparison of the incidence of trichomonads from the bowel and mouth indicates that intestinal infestation probably does not result from ingestion of the buccal forms.

9. Unlike the intestinal and buccal trichomonads, *Trichomonas vaginalis* was not cultivable at room temperature and was considered physiologically different.
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DIABETES MELLITUS

REPORT OF A CASE RESISTANT TO INSULIN BUT
RESPONSIVE TO A CHANGE IN THE TYPE
OF CARBOHYDRATE FED

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AND

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Since the introduction of insulin, cases have appeared from time to time that showed most of the symptoms and signs of diabetes mellitus but did not respond to insulin. The physiologic explanation behind most of these conditions is still obscure. For this reason we are reporting the following case, which was insulin resistant but did respond to a change in the type of monosaccharide derived from the food:

H. W., a white boy, aged 25 months, was admitted to Babies Hospital July 11, 1935, for malnutrition and glycosuria. The family history was irrelevant. The patient had had repeated respiratory infections with otitis media and one attack of bronchopneumonia. He was small at birth and gained very slowly in spite of adequate amounts of food and vitamins. The weights were: at birth 4 pounds 14 ounces (2,213 Gm.); at one year 12 pounds (5,443 Gm.); at eighteen months 13½ pounds (6,123 Gm.); at 25 months 15¼ pounds (6,917 Gm.). Sugar was discovered in the urine in October 1934, when he was 18 months old. Until March 1935 an unsuccessful attempt was made to control the glycosuria by regulating the diet. From then until admission, insulin was used in increasing amounts, up to 60 units a day, without controlling the glycosuria.

He was a small infant with thin legs and arms and a protuberant, tense abdomen. He was 40 per cent under weight and considerably under height for his age. There was more than the normal quantity of hair on his trunk and extremities. There was a yellowish pigmentation of the palms and soles and small areas on the arms and legs. All the deciduous teeth were erupted but they were malformed, carious and irregularly placed. The genitals were large and more adult in type than is usual at 2 years. The liver and spleen were both palpable 2 cm. below the costal margin. He could sit up but could not stand. He was moderately anemic. The Kahn reaction was negative. An increased sugar was the only abnormality in the blood chemistry. The urine showed from 0 to 8 per cent sugar, from 1.018 to 1.045 specific gravity, from 0 to 4 plus nitroprusside and ferric chloride tests, and a faint trace of albumin.

METHODS

Total blood sugars and the nonfermentable fraction were determined as follows: After precipitation of the proteins in the blood with tungstic acid, as suggested by Peters and Van

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From the Babies Hospital and the Department of Diseases of Children of Columbia University College of Physicians and Surgeons. A preliminary report of this case was given at the meeting of the American Pediatric Society at Bolton Landing, June 12, 1936. Abstract published in the American Journal of Diseases of Children 52: 1253 (Nov.) 1936.

Slye,¹ total blood sugars were determined on the filtrate by Benedict's² method. This method "determines nonfermentable substances equivalent in reducing power to only 4 to 8 mg. of glucose per 100 cc. blood."³ Somogyi's⁴ method was used in the preparation of the yeast suspension. Since many low values were encountered in the nonfermentable fraction, the concentration of blood and tungstic acid was doubled and this filtrate was fermented for fifteen minutes at room temperature. The fermentable fraction was determined by difference.

Respiratory quotients were determined by the chamber method as follows: Air was blown through the chamber at such a rate that after the patient had been inside for thirty minutes the carbon dioxide content of the air leaving the chamber was less than 1.7 per cent, generally about 1 per cent. Air leaving the chamber was collected in a spirometer for a period of ten minutes after the patient had rested in the chamber for thirty minutes. Duplicate analyses were made of this "expired air" by Carpenter's⁵ method. With the same technic respiratory quotients of alcohol were determined to be 0.667. Frequent analyses of outdoor air gave 0.033 per cent for carbon dioxide and 20.940 for oxygen.

CARBOHYDRATE STUDIES

On a diet that contained 90 Gm. of carbohydrate, 45 Gm. of protein and 50 Gm. of fat, he excreted about 25 Gm. of sugar a day, regardless of the insulin dosage—even when this was

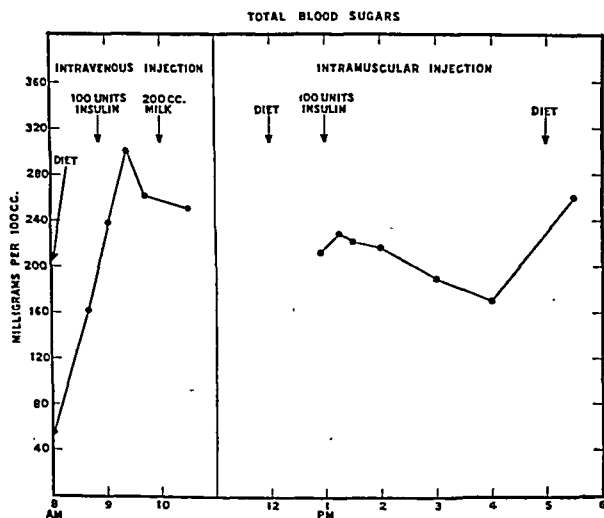


Chart 1.—The effect of 100 units of insulin on the blood sugar.

90 units a day. The fasting blood sugar was always low, varying from 50 to 75 mg. per hundred cubic centimeters. After breakfast the blood sugar rose promptly to an abnormal height, where it stayed until about two hours after supper, when it began to fall steadily. After smaller amounts of insulin had been tried without effect, he was given 100 units of insulin intramuscularly one hour after a mixed meal. As this had no apparent effect on the blood sugar curve, he was given on another day 100 units of insulin intravenously one hour after a mixed meal (chart 1). Again the blood sugar curve showed no apparent effect from the insulin. These results, the low fasting blood sugar and the lack of response to insulin, made it quite certain that the condition was not ordinary diabetes due to pancreatic insufficiency.

Dr. G. L. Foster positively identified the urinary sugar as dextrose. His observations were as follows: 1. Concentration of sugar (as dextrose) by the Shaffer-Hartmann method was 4.84 per cent. Concentration of sugar (as dextrose) by

polariscope was 4.68 per cent. 2. Reduction after treatment with yeast was nil. 3. The employment of phenylhydrazine gave nothing but phenylglucosazone.

To test the patient's ability to metabolize the three important monosaccharides we fed him a diet which contained 97 Gm. of carbohydrate, 10 Gm. of protein and 70 Gm. of fat. One day 90 Gm. of the carbohydrate was dextrose, another day levulose and a third day galactose. The urine excreted between

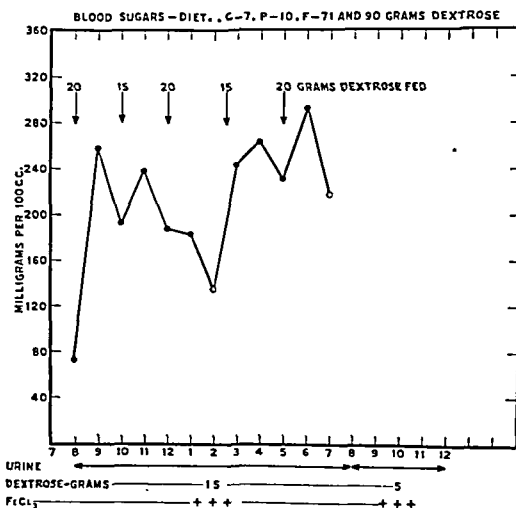


Chart 2.—The blood sugar curve when the carbohydrate in the diet was largely dextrose.

8 a. m. and midnight contained on the dextrose day 20 Gm. of sugar but on the levulose day only 2.3 Gm. of sugar. The urine excreted between 8 a. m. and 8 p. m. on the galactose day contained 4.4 Gm. of sugar, of which 2.3 Gm. was dextrose and 2.1 Gm. galactose. The fasting blood sugar was low on all three days. On the dextrose day (chart 2) it rose promptly after breakfast to an abnormal height and stayed well above the renal threshold most of the time until evening. On the levulose day (chart 3) the blood sugar stayed below 120 mg. per hundred cubic centimeters the entire morning but was

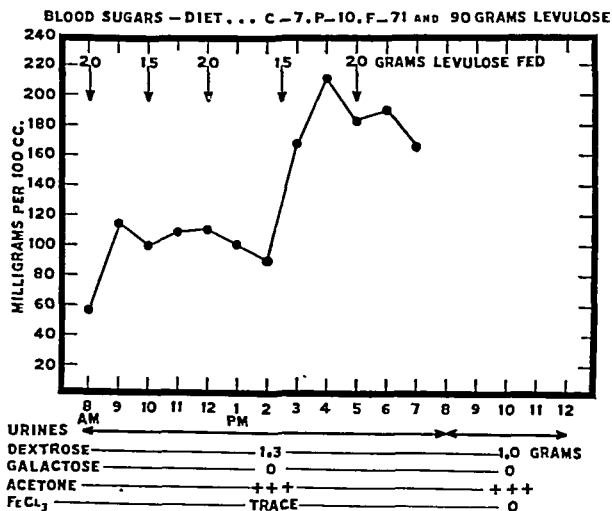


Chart 3.—The blood sugar curve when the carbohydrate in the diet was largely levulose.

over 160 mg. per hundred cubic centimeters from 3 to 7 p. m. On the galactose day (chart 4) the total blood sugar was high throughout the morning owing to the presence in the blood of large amounts of galactose, but the blood dextrose remained within normal limits until afternoon, when it showed a tendency to rise. These results indicated that the patient could metabolize levulose and galactose much better than dextrose.

In order to be sure that he could convert and store the dextrose producing fractions of protein and fat in a normal

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In brief, the results observed were as follows: A low fasting blood sugar. An abnormal rise in blood sugar and glycosuria following the ingestion of carbohydrate that resulted in the absorption of ordinary amounts of dextrose, while the ingestion of isocaloric amounts of levulose or galactose or large amounts of protein or fat caused much less rise in blood sugar and little or no glycosuria. Little or no response to insulin. A normal reaction to epinephrine, the rise in blood sugar being greater when the patient had ingested levulose or galactose three hours before he received the epinephrine than it was when he had ingested dextrose. A rise in the respiratory quotient after the ingestion of dextrose or sucrose in the absence of injected insulin. At no time did he excrete anything like the total amount of sugar ingested.

From these observations it is evident that the patient can and does burn a fair percentage of carbohydrate without the help of injected insulin. In fact, injected insulin does not serve to help him in disposing of the excess dextrose received during absorption. He is, however, able to handle excess carbohydrate absorbed as levulose or galactose. This would seem to make it probable that his difficulty is in the storage of dextrose in the liver. If he can store levulose and galactose much more efficiently than dextrose, it would seem necessary to conclude that there must be some difference in the routes which levulose and galactose travel as opposed to dextrose in the process of storage.

In the process of digestion practically all the carbohydrate in the food is hydrolyzed to three hexoses: dextrose, levulose and galactose. These pass into the portal blood and thence to the liver unchanged. Thus three different monosaccharides enter the liver but ordinarily only one, dextrose, is released from the liver and enters the systemic circulation. However, during the absorption of large amounts of levulose or galactose the systemic blood frequently contains these hexoses in considerable amounts.

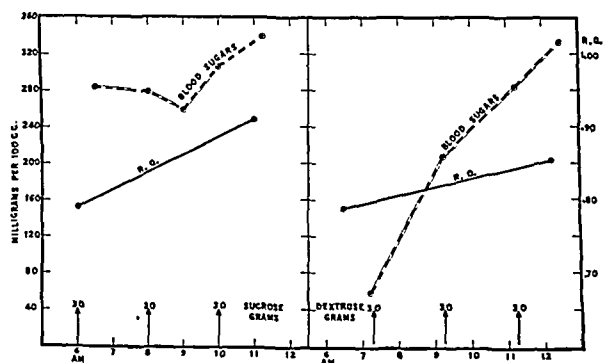


Chart 7.—Respiratory quotients before and after the ingestion of sucrose and dextrose.

Just what happens in the liver to the sugar that enters it as galactose and levulose and ordinarily leaves as dextrose is not known. Three possible routes would seem to be open (chart 9): first, levulose and galactose may be converted to dextrose directly. Then they may be stored as glycogen or excreted as dextrose just as is the sugar that enters the liver as dextrose. Second, levulose and galactose may have to be converted to glycogen first and only after they have undergone this conversion may they be changed to dextrose. Third, levulose and galactose may be first changed to some intermediary product, possibly of the three carbon type. After reaching this stage they may be changed to glycogen for storage or to dextrose for excretion.

If the first route is the true one and levulose and galactose are first changed to dextrose, it seems reasonable to suppose that the same mechanisms must decide whether the dextrose from levulose and galactose shall be stored as glycogen or excreted as dextrose that decide this for the sugar entering the liver as dextrose. Thus all three monosaccharides should behave alike ordinarily. The only exception would be when the liver was unable to convert one of them into dextrose. In this case the unconverted sugar would appear in the blood and the urine.

If the second or third route is the true one, levulose and galactose may behave differently from dextrose because of necessity they must first be changed to gly-

cogen or the intermediate product. As soon as this happens they come under the influence of the mechanism that controls glycogenolysis or the conversion of the intermediary product to dextrose. Dextrose, on the other hand, would escape these controls unless it was changed to glycogen or the intermediate product. That the second or third route is the true one is suggested

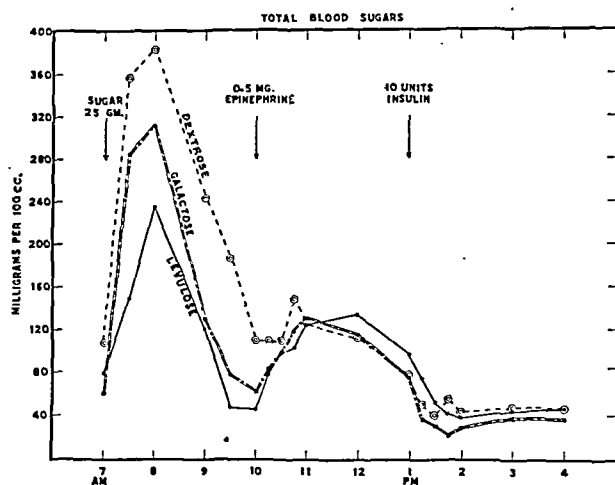


Chart 8.—Blood sugar curves after the ingestion of 25 Gm. of each of the monosaccharides, showing the effect of 0.5 mg. of epinephrine and 10 units of insulin.

by Cori's⁶ demonstration that levulose forms glycogen as fast as does dextrose. This would seem to be impossible if levulose were first changed to dextrose.

Our patient can apparently store levulose and galactose in an approximately normal manner but he cannot store dextrose as well. It would seem to us that this

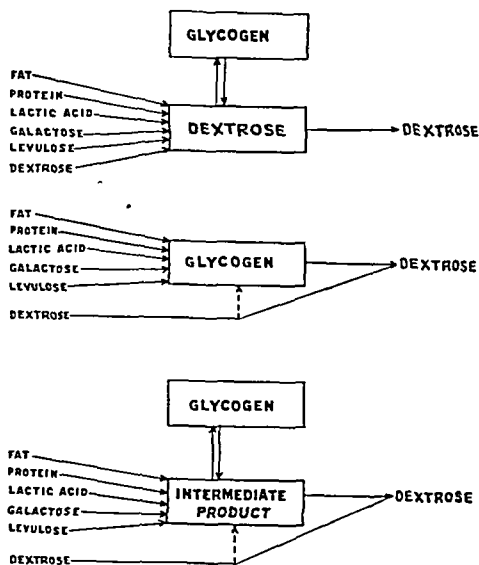


Chart 9.—Diagrams of the three suggested routes of sugar in the liver.

is probably due to his liver's lessened ability to convert dextrose to glycogen or the intermediate product. If this is true it necessitates either the second or third route being the true route. To produce this condition one does not have to suppose that there is anything

6. Cori, C. F.: The Fate of Sugar in the Animal Body: III. The Rate of Glycogen Formation in the Liver of Normal and Insulinized Rats During the Absorption of Glucose, Fructose and Galactose, *J. Biol. Chem.* 70: 577 (Oct.) 1926.

wrong with the mechanism controlling glycogenolysis or the conversion of the intermediate product to dextrose.

Besides the three monosaccharides there are other precursors of dextrose entering the liver in varying amounts all the time. These include lactic acid from the tissues, 58 per cent of the amino acids from the food and tissues, and at least 10 per cent of the fat from the food and body stores. Here again there is little absolute knowledge regarding the route traveled from precursor to dextrose but it is generally believed that they all change to glycogen or the intermediary product, first. This belief is supported by the observations in this case. If this is true and all the precursors of dextrose are, of necessity, first changed to glycogen or some intermediate product and can become dextrose only by traveling this route, it follows that after reaching this stage they are all under the control of the glycogenolysis mechanism, or the mechanism for converting the intermediary product to dextrose. Dextrose entering the liver is the only one that may escape this mechanism, and even it comes under the same control if changed to glycogen.

Our conception of the condition in this patient is that of a marked lessening of the liver's ability to change dextrose to glycogen or the hypothetical intermediate product. On an ordinary mixed diet this results in periodic flooding of the tissues with abnormal amounts of dextrose and at the same time keeps the liver's store of glycogen at a low point, for the excess dextrose in the blood stream instead of being stored is promptly excreted, and after this has happened the small store of liver glycogen is called on to keep up the blood sugar until the arrival of the next flood of dextrose. This is certainly not diabetes mellitus in the strict sense, for it is due to a defective liver function rather than a defective pancreatic function.

Now if we are correct in interpreting our evidence to mean that this patient exhibits no other basic physiologic abnormality, all other departures from the normal state being in his case referable to this single fundamental derangement of liver function, our studies may have wider application, for it now becomes reasonable to infer that in normal subjects the precursors of dextrose are not ordinarily converted directly to dextrose by the liver but that before they can become dextrose they must first be changed to glycogen or some intermediary product. The moment this happens they come under the control of the mechanism controlling glycogenolysis or the conversion of the intermediary product to dextrose. This hypothesis would make it highly probable that one of the functions of insulin is to slow or lessen glycogenolysis or the conversion of the intermediary product to dextrose for the sugar in the urine of a diabetic patient is never levulose or galactose but always dextrose.

It is difficult to make up an adequate diet for a small child that does not furnish considerable amounts of dextrose without making the cost prohibitive. The patient was at home from June to September 1936. His diet during this time was composed of milk (lactose is absorbed as equal parts of dextrose and galactose), banana powder (a considerable part of the sugar in which is levulose), meat, green vegetables and vitamins. On this diet he excreted about 10 Gm. of sugar a day. In the three months he gained 2 pounds (907 Gm.), he began to run about and talk freely and his whole outlook on life changed from that of a sick infant to

that of a normal child. The relatively rapid gain and marked improvement in his general condition would suggest that the change in diet was along the right direction.

SUMMARY

In a case of glycosuria resistant to insulin the glycosuria could almost be stopped by the substitution of levulose or galactose for dextrose in the diet.

There was evidence to show that the patient was able to burn dextrose freely without the help of injected insulin.

It is suggested that the difficulty is due to a marked lessening of the liver's ability to convert dextrose to glycogen or an intermediary product in this conversion.

If our interpretation of the physiologic disturbance manifested by this patient is correct, it is rendered likely that in normal human subjects the precursors of dextrose are all changed to glycogen or at least undergo some preliminary step of this conversion before they can become dextrose. A further interpretation of the evidence presented is that one of the modes of action of insulin is a retardation of the conversion of glycogen or the intermediate substance to dextrose.

Broadway and One Hundred and Sixty-Seventh Street.

SUBCUTANEOUS EMPHYSEMA IN BRONCHIAL ASTHMA

REPORT OF A CASE

J. B. KIRSNER, M.D.

CHICAGO

Subcutaneous emphysema following trauma is a familiar clinical entity and is frequently seen after puncture of the lung by a fragment of bone in a fracture of a rib, in a bullet or stab wound, or around the point of insertion of the needle in artificial pneumothorax. A similar clinical picture has been described after esophagoscopy,¹ tonsillectomy,² extraction of a tooth,³ parturition,⁴ and as a complication of a foreign body in the bronchus.⁵ Many articles have reported this interesting complication following pneumonia (Rush, Adkinson and Hardwick,⁶ Lucke and Meyer,⁷ Sergeant, Launay, Poumeau-Delille and Robert,⁸ Harris,⁹ Jones¹⁰ and Borsarelli,¹¹ among others). Its occurrence after rupture of a viscus¹² and in glass blowers¹³ indicates the wide variety of etiologic factors. Apparently subcutaneous emphysema following bronchial asthma is a rather rare complication. The only case that I have been able to locate in the American literature is that of Kahn,¹⁴ who observed this condition in an 8 year old girl. The two earliest reports have been found in the *British Medical Journal*: Culverly¹⁵ in 1902 described

From the Department of Medicine, Division of Allergy, University of Chicago.

1. Zipper, J.: *Deutsche Ztschr. f. Chir.* 190: 223-227, 1926.
2. Baker, L. J.: *Canad. M. A. J.* 34: 670-671 (June) 1936.
3. Hanzean, P.: *Presse méd.* 44: 417-418 (March 11) 1936.
4. Hulbert, H. F.: *New York State J. Med.* 36: 648-649 (April 15) 1936.
5. Clerf, L. H.: *Ann. Otol., Rhin. & Laryng.* 44: 364-370 (June) 1935.
6. Rush, H. P.; Adkinson A., and Hardwick, T. E.: *Northwest. Med.* 30: 129 (March) 1931.
7. Lucke, B., and Meyer, J.: *Am. J. M. Sc.* 59: 417 (March) 1922.
8. Sergeant, Launay, Poumeau-Delille and Robert: *Bull. et. mém. Soc. méd. d. hôp. de Paris* 49: 367-374 (March 27) 1934.
9. Harris, R. R.: *U. S. Vet. Bur. Med.* 3: 50-51 (Jan.) 1927.
10. Jones, B. B.: *Virginia M. Monthly* 59: 304-305 (Aug.) 1932.
11. Borsarelli, F.: *Pediatrica d. med. prat.* 7: 24-32 (Jan.) 1932.
12. Korach, S.: *Zentralbl. f. Chir.* 54: 2832-2833 (Nov. 5) 1927.
13. Metz, G. A.: *Krankheitsforschung* 9: 1-12 (Jan.) 1931.
14. Kahn, I. S.: *Subcutaneous Emphysema in a Case of Bronchial Asthma*, J. A. M. A. 88: 1883 (June 11) 1927.
15. Culverly, E. J. C.: *Brit. M. J.* 2: 1899, 1902.

the occurrence of subcutaneous emphysema in a youth, aged 17, clearing in four days. Whitby¹⁶ in 1905 reported this complication in a man, aged 25, in whom the emphysema was extensive but responded to morphine and tincture of lobelia. More recently MacDermot's¹⁷ case concerns a man, aged 22, who had asthma due to ragweed pollen for six years. During a paroxysm of dyspnea he felt some pain in the upper part of the chest with the development of subcutaneous emphysema in the tissues of the neck. The asthma subsided with palliative treatment and the emphysema disappeared in five or six days. In 1934 Davidson¹⁸ presented a case of subcutaneous emphysema in a 9 year old girl whose asthma had extended over eight years. This was initiated after a severe coughing spell by sudden sharp pain over the anterior aspect of the left upper portion of the chest. There was extensive subcutaneous infiltration of air into the upper part of the chest and back, both shoulders, both arms as far as the dorsum of the hands, both sides of the neck, and the lower half of the face. There was no pneumothorax or other pathologic condition. The asthma was relieved by ephedrine syrup and recovery was complete in one week. In the foreign literature Pastorino,¹⁹ Kruysveldt,²⁰ Artagaveytia²¹ and Scheltema²² have reported other cases of subcutaneous emphysema as a complication of bronchial asthma. This case, then, is the tenth of the kind to be reported.

REPORT OF CASE

E. S., a man, aged 38, an animal (bird) caretaker since 1929 in the Department of Zoology at the University of Chicago,



Fig. 1.—One day after admission, illustrating extent of subcutaneous emphysema.

seen in the Allergy Clinic, Aug. 27, 1936, complained of asthma of six days' duration. August 30, while undergoing investigation in the outpatient department, he returned in an acute

asthmatic attack; this responded very well to epinephrine and the patient felt well enough to return home. However, the attacks recurred with increasing severity; the same evening a slight swelling in the neck was detected. His condition became worse despite his family physician's care and he entered Billings Memorial Hospital August 31. The patient's past history was negative except for a left inguinal herniorrhaphy and a gunshot wound in the left wrist.

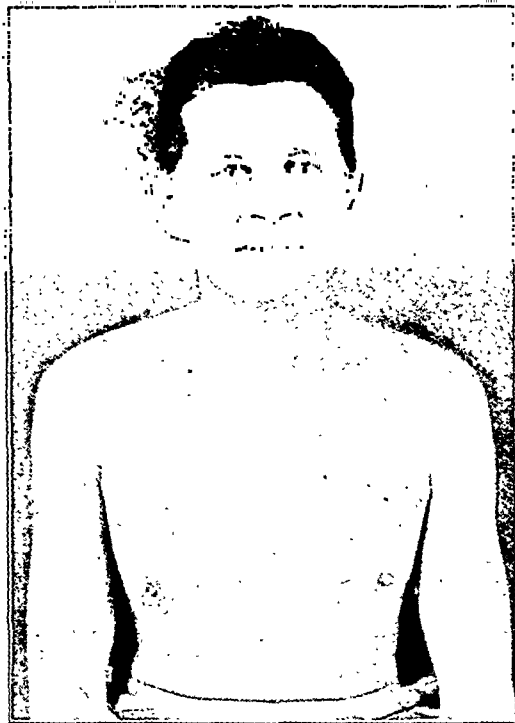


Fig. 2.—Ten days later, demonstrating complete disappearance of subcutaneous emphysema.

At physical examination he was propped up in bed, dyspneic and slightly cyanotic. The face was swollen, especially the left side, with the left eye nearly closed. The swelling covered both anterior and posterior triangles of the neck, extending over the anterior thorax to the level of the fifth intercostal interspace, and posteriorly to the angles of the scapulae. This entire area was crepitant. The apex beat was located 9 cm. from the midsternal line. The heart sounds were regular, with a rate of 82. The pulmonic second sound was greater than the aortic second sound. The blood pressure was 128 systolic and 82 diastolic. Diminished tactile and vocal fremitus with dullness was noted over the left lower lung field. Elsewhere were heard coarse vesicular sounds with typical asthmatic squeaks and whistles. Roentgenograms of the chest demonstrated a large amount of air in both supraclavicular regions and in both axillae, and air in the soft tissues of the neck. No air was seen in the pleural cavities; the trachea was in the midline, the heart was not enlarged and the lung fields were clear except for increased markings at the left base. The emphysema progressed down the anterior wall of the chest and along both arms to the dorsum of the hands. Roentgenograms at this time disclosed infiltration of air into the deep fascia of the neck and separation of the individual muscles from their neighbors; also extension into the mediastinum. An infiltrative lesion of the left lower lobe was noted. It was believed that the origin of the emphysema lay somewhere in the inferior mediastinum.

One day after admission, 300 cc. of air was removed by needle aspiration at a point 2 cm. below the right clavicle and from 4 to 5 cm. from the midline. There was a distinct improvement in the next few days. During this time he received 50 cc. of 50 per cent dextrose intravenously and frequent doses of from 4 to 6 minims (0.25 to 0.37 cc.) of epinephrine (1:1,000) subcutaneously. At one time the patient was seized with an acute gripping precordial pain with acute dyspnea; the blood pressure was 136 systolic and 68 diastolic;

16. Whitby, C. J.: *Brit. M. J.* 1: 73, 1905.

17. MacDermot, H. E.: *Canad. M. A. J.* 21: 708 (Dec.) 1929.

18. Davidson, F. C.: *Lancet* 1: 1230 (June 9) 1934.

19. Pastorino, A.: *Rev. de tuberc. d. Uruguay* 4: 256-259, 1934.

20. Kruysveldt, C. S.: *Nederl. tijdschr. v. geneesk.* 77: 5380-5382 (Dec. 2) 1933.

21. Artagaveytia, A. and Zanzi, L. A.: *Rev. d. tuberc. d. Uruguay* 2: 428-445 (Nov.-Dec.) 1932.

22. Scheltema, M. W.: *Geneesk. gids* 9: 1076-1079 (Nov. 13) 1931.

an immediate electrocardiogram was normal. This pain gradually abated in several hours and never returned. Eight days after admission the emphysema was noticeably disappearing; the patient's breathing was easier. He was taking fluids by mouth and expectorating large quantities of purulent sputum. The dullness over the left lower lobe was decreasing. His temperature, which had ranged from 100.5 to 104 F., gradually approached normal. Roentgenograms confirmed the diminution of the emphysema but the lesion at the left base was now quite dense and suggested fluid. A laryngoscopic examination was negative. Except for occasional mild pain over the left lower lobe, improvement was steady, and twenty days after admission the patient was discharged well except for slight dullness and slightly diminished breath sounds over the left lower lung field.

Roentgen examination demonstrated that the emphysema had almost entirely cleared save for a small amount of air in the right subclavicular region. There was no change in the lesion at the left base. The right lung was clear. Venous pressures with the direct spinal manometer technic were always normal, except for one occasion when it reached 200 mm. of water during a spasm of especially difficult breathing. The white blood count after having reached 16,100 descended to normal. The urine was normal except for occasional white blood cells. The blood Wassermann and Kahn reactions were negative. About ten days later, x-ray examination demonstrated complete absence of the subcutaneous emphysema; the lesion at the left base had considerably decreased and was believed to represent a localized area of pneumonia. At this time the patient felt very well and physical examination was negative again except for slight dullness at the left base. At a recent check up the patient appeared very well; he had gained 15 pounds (6.8 Kg.) and was symptom free.

RESULTS OF SKIN TESTS

Cutaneous tests to canary, chicken, duck and goose feathers, ragweed pollen and various inhalants were all negative. Similar results were obtained on intradermal testing except for a questionable reaction to chicken feathers and house dust, delayed reactions to catarrhal vaccine and pyrethrum and one plus reaction to ozite.

Material was obtained from the laboratory in which the patient was employed, and testing gave the following results:

Cutaneous tests to chicken feed, chicken mash, floor dust, floor litter (chaff), guinea fowl, hawk, owl and parakeet feathers, pheasant feed, and rowen duck were all negative.

Intradermal tests to floor litter (chaff) +, hawk feather +, chicken mash + +, chicken feed ±, pheasant feather ±, owl feather 0, parakeet feather, diluent —.

ADDENDUM.—The patient was last seen on March 29, 1937, at which time he was in good health, having regained his usual weight of 180 pounds (82 Kg.). Since wearing a mask during his work in the laboratory, he has been free of any respiratory difficulty.

COMMENT

The pathologic physiology of this condition would seem to be based on the rupture of pulmonary alveoli as a consequence of increased intrapleural and intra-alveolar pressure occasioned by the marked difficulty in expiration, typical of bronchospasm. The rupture of an emphysematous bleb or of a cavity apparently permits air to extend through the interstitial tissue of the lung into the loose cellular tissue of the mediastinum and from there to the subcutaneous tissue of the neck and face and over the entire body. The courses that air may take in the production of mediastinal and subcutaneous emphysema have been especially well studied experimentally by Ballon and Francis.²³ They have pointed out some of the consequences of increased mediastinal pressure, particularly the hyperventilation or hypoventilation of the lungs—stagnation of blood in the pulmonary bed, edema of the lungs and development of fluid in the pericardial cavity. In this particular case, hypoventilation could well explain some of the respiratory difficulty; none of the other com-

plications were observed. My normal results with venous pressures are consistent with the results of other investigators in this respect. The significance of the area of consolidation in the left lower lobe seems difficult to evaluate. Interstitial emphysema following influenzal bronchopneumonia has been noted by Kountz and Alexander,²⁴ Kelman²⁵ and Harris,⁹ among others. Its occurrence has been attributed to toxic action of the infecting agent on the lung parenchyma, on the respiratory center producing dyspnea, cyanosis and resultant emphysema²⁵ and to ulceration of the bronchial mucous membrane.⁹ In the present case it would seem that the acute asthma was the primary factor in the development of the clinical picture with the pulmonary consolidation a secondary complication.

SUMMARY

1. Subcutaneous emphysema is a rare complication of bronchial asthma.
2. The emphysema in this case was probably due to the rupture of emphysematous blebs into the inferior mediastinum.
3. Symptomatic treatment and the usual measures employed in acute bronchial asthma are generally successful.

950 East Fifty-Ninth Street.

BIOPSY STUDIES OF HUMAN ENDOMETRIUM

CRITERIA OF DATING AND INFORMATION
ABOUT AMENORRHEA, MENORRHAGIA
AND TIME OF OVULATION

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AND

MARSHALL K. BARTLETT, M.D.

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Interest in the factors of female fertility has led us to a study of the endometrium, for among the cyclic changes in this tissue is written the story of the patient's menstruation, and from this we have traditionally sought insight into her ovarian behavior. Long before modern endocrinology a close association was recognized between uterine flow and fertility. Of late we have enjoyed the demonstration of causal relationship between the hormones of the follicles and of the corpus luteum on the one hand and of changes in the endometrium on the other. Work done in both the clinic and the laboratory shows that estrogen is the specific hormone of the growing and ripe follicle and that it causes proliferation of the endometrium. This is a true growth of the mucosa evidenced by many mitoses in the glandular epithelium, an increase in the number and complexity of the glands and an increase in the thickness of the whole tissue. It is learned too that the corpus luteum, which normally forms in the follicle only after its rupture and ovulation, secretes among other hormones the same estrogen and its own hormone, progesterin, which causes specific changes in the proliferated and sensitized endometrium. The latter changes, which are attributed to progesterin and are called secretory or functional, consist of certain cytologic variations in the glands and stroma of the uterine lining.

24. Kountz, W. B., and Alexander, H. L.: *Medicine* 13: 251-316 (Sept.) 1934.

25. Kelman, Sarah R.: *Experimental Emphysema*, *Arch. Int. Med.* 24: 332 (Sept.) 1919.
From the Fertility Clinic, Free Hospital for Women,
Read before the New York Academy of Medicine, May 26, 1936.

23. Ballon, H. C., and Francis, B. F.: 8. Consequences of Variations in Mediastinal Pressure: Mediastinal and Subcutaneous Emphysema, *Arch. Surg.* 19: 1627-1659 (Dec. 1st. 21) 1929.

If one accepts the causal specificity of these mutations among the cells of the endometrium, that proliferation or growth of the glandular epithelium is the specific effect of estrogen, which comes in appreciable amounts only from the functioning follicle, one can reason backward and conclude that if the endometrium has these characteristics there is in one ovary at least one functioning follicle. And if one accepts the demonstration that progesterin, which comes only from the corpus luteum, is the specific and only cause of secretory or functional changes in the glandular epithelium, one may likewise conclude that if the endometrium is found in such a secretory state there is at least some functioning corpus luteum in at least one ovary.

As, for a working basis, we have accepted these two causal specificities, that of estrogen on proliferation and of progesterin on secretion, we have attempted to ascertain the condition in the ovaries by study of the endometrium.

For such a study we have used biopsies of the endometrium obtained by the small suction curet. To use this instrument profitably and to interpret the curettings correctly require recognition of the fact that all parts of the uterine lining and all levels of the endometrium do not partake synchronously or in the same degree in the proliferative and secretory activity mentioned. We believe that it is in only the mucosa from high on the anterior or posterior wall of the fundus that the cytologic changes specified occur with consistent accuracy and progression. Furthermore, even in specimens from these portions of the uterus, correct interpretation can be made only from the most superficial layer of the endometrium. Diagnosis is complicated even more by the fact that the endometrium, especially in hyperplastic conditions and in the late secretory phase, is not a flat smooth tissue but lies in irregular ripples over the subjacent myometrium. The day by day changes in the epithelium of the mounds and the valleys are not always of exactly the same degree. Fortunately one can ascertain by the arrangement and number of

at least three times as much tissue. The larger surgical curet is also less useful even apart from its size, which requires dilation of the internal os. It traumatizes the tissue much more than does the smaller suction instrument. As the localization of the specimen and the finer dating of secretory specimens depend on the amount of edema and of internuclear cytoplasm in the stroma, and on the arteriolar proliferation and the condition of the



Fig. 2.—Early proliferation. Simple, small glands with low columnar epithelium and absent or beginning pseudostratification. Many mitoses. Fairly dense stroma. Small stroma nuclei with little if any cytoplasm.

perivascular stroma cells, the blood that the gross curet sets free in the tissue frequently constitutes a blinding hemorrhage. The smaller instrument can be used week after week to follow the development of the endometrium, for the damage it does to the tissue is slight and quickly repaired. Furthermore, it obtains only the useful superficial portion of the endometrium and not the deeper layers, in which the specific cyclic changes are not so regular or extensive. Such biopsy is a short office procedure rarely requiring anesthesia, and then not more than 3 cc. of 10 per cent solution of the sodium salt of n-methyl-cyclo-hexenmethyl barbituric acid, given intravenously. This renders the patient unconscious for the requisite two minutes. Complete recovery, sufficient to permit leaving the office, seldom requires more than ten minutes.

To characterize deviation from normal menstruation, we have used the following terms: normal menstruation to mean uterine bleeding in cycles not shorter than twenty-four days nor longer than thirty-one days, lasting at least two days and at most seven days and requiring at least two napkins for at least two days; oligomenorrhea or "few catamenia" to mean cycles habitually longer than thirty-two days and not usually longer than three months; polymenorrhea or "many catamenia" to mean cycles habitually shorter than twenty-four days; hypomenorrhea or "diminished flow" to mean bleeding requiring less than two napkins for less than two days; hypermenorrhea or "increased flow" to mean bleeding requiring more than six napkins for more than five days; amenorrhea, to mean absence of uterine bleeding for periods not less than three months; metrorrhagia, to mean bleeding quite irregular in interval, duration and amount, and aperiodomenorrhea or "irregular catamenia" to mean bleeding in cycles sometimes shorter than twenty-four days and sometimes longer than thirty-two days, a combination of oligomenorrhea and polymenorrhea.

Of the 900 biopsies from which this study was made, only 457 biopsies from 329 patients are here discussed,



Fig. 1.—Hypoplasia of endometrium. Biopsy obtains long ribbons of superficial epithelium and little if any stroma. Few, if any, tiny glands. All the sections presented are reduced from photomicrographs with a magnification of 100 diameters.

glands at the various stages of growth, by the quality of the stroma, and by the presence or absence of the superficial covering epithelium whether one has obtained tissue from the desirable loci or not.

Because even from these most favorable places the picture varies slightly, we believe that the punch biopsy is less serviceable than the suction curet, which obtains

Several hundred other biopsies from these and other patients are not included because the ancillary data were insufficient; because the biopsy had been preceded by organotherapy, which may have changed the natural endocrine balance; because they were uninformative repetitions of previous observations, as in repeated specimens from an unchanging amenorrheic endome-

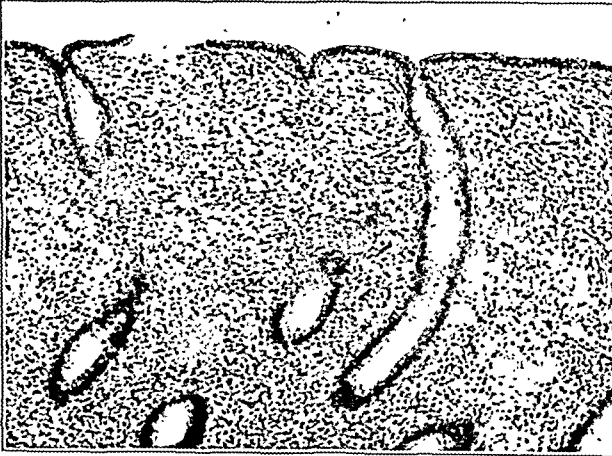


Fig. 3.—Late proliferation. Simple, moderately dilated glands with columnar epithelium and pseudostratification and occasional mitotic figures. Stroma cells low in cytoplasm. Extravasation of erythrocytes, possibly traumatic.

trium, and in about fifteen cases because the specimen was inadequate for satisfactory examination. The tissue drawn into the curet was washed out and hardened in solution of formaldehyde, then cut in celloidin to a thickness of 14 microns and stained with hematoxylin and eosin. Specimens are diagnosed arbitrarily on the basis of a twenty-seven day cycle with ovulation on the fourteenth day, corpus luteum effect on the fifteenth day and menstruation on the twenty-eighth day. We have worked out our own criteria for diagnosis of the



Fig. 4.—Seventeen day endometrium. Further rippling and dilatation of glands. Stroma still generally dense. Stroma nuclei almost nude. Marked change in epithelium of glands. In the glandular epithelium there is a central migration of the nuclei, leaving a well marked lucid zone behind.

specimens, with some assistance from the previous work of Schroeder¹ in Germany. We have derived valuable assistance also from studies made here by Bartelmez²

and by O'Leary.³ We do not claim exact accuracy. We believe, however, that it is possible to detect even a slight progestin influence and that it is justifiable, when this is found, to assume ovulation as having occurred. Furthermore, we believe it possible to read in the endometrium the duration of progestin effect and thus ascertain the age of the corpus luteum, and possibly the normality of balance between progestin and estrogen in the blood. To determine, in the presence of imbalance, just which factor is deficient may be possible when more is learned of just which cytologic effects during the functional phase of endometrial activity are attributable to each hormone. Some are known already, as I hope to show; many must still be hidden from us.

The characteristic endometrium of the established menopause and of most long-standing cases of amenorrhea, with its thin, superficial epithelium, its thin stroma and paucity of relatively small and simple glands yields to the curet only the topmost epithelial layer and stroma with a depth of only a few cells (fig. 1). In the last three years we have come to know that from this hypoplastic endometrium alone does the curet fail to obtain more stroma and glands and so confidently diagnose hypoplasia when only such a tiny

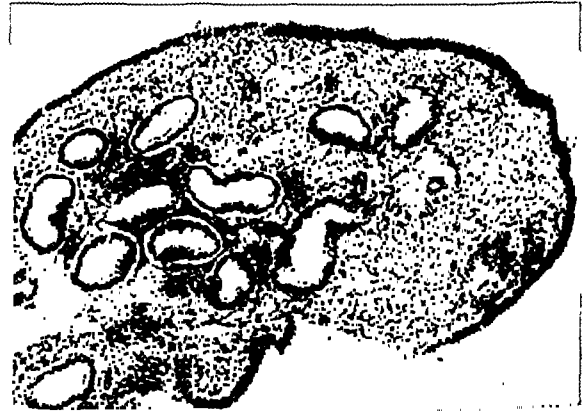


Fig. 5.—Nineteen day endometrium. Slightly more generalized edema of stroma. Nuclei still with little cytoplasm. Glands practically as before except for epithelium.

specimen is obtained. From this we deduce a failure of follicle formation and of estrogen production. Estrogen effect is readily seen in the larger specimens, which include stroma and glands. After the third day of menstruation the epithelium of the glands, which was cuboidal, quickly becomes columnar with pseudostratification of the nuclei and frequent mitoses. The glands at first are uniformly small and simple. While they remain thus we call the endometrium early proliferative (fig. 2). Later when the stroma nuclei increase a little in size, the glands become larger and wavy and the epithelium becomes high columnar with marked pseudostratification and frequent mitoses, we diagnose late proliferation (fig. 3). When we find such glandular epithelium lacking in mitoses or containing only an occasional mitotic figure in a rare gland, we arbitrarily classify it as a fourteen day specimen. If signs of continued growth, as evidenced by many mitoses in pseudostratified columnar epithelium, occur in plentiful dilated distorted glands placed in relatively thick stroma, the diagnosis of fourteen day hyperplasia is made. If such glands vary widely in size, especially if some are

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cystic—that is, are large, round and with flattened epithelium—we call it fourteen day dysplasia, of which Novak's "swiss cheese" endometrium is an example.

We have not been able to make day by day classification of proliferating endometrium, that of the estrogen phase of the ovarian cycle. We see an appreciable difference by the concentration and size of glands and by the gland epithelium between the six day endometrium and that of the twelfth day, but among the first eight days and among the last six we cannot define exact criteria. We therefore limit our classification of normal proliferating endometrium to the types mentioned: "early proliferating," when they resemble a six day type; "late proliferating" when they more closely resemble a twelve day type, and "fourteen day" when proliferation has been accomplished and mitotic figures are scarce.

From the fourteenth day on to the twenty-seventh and menstruation, classification is much simpler, although we make no claim to exact accuracy. The first sign of progestin effect, which we arbitrarily place on the fifteenth day, is seen in vacuolization of the cytoplasm and beginning migration of the nuclei toward the sur-

From the twenty-first day onward the telltale signs are seen not primarily in the glands but in the stroma and vascular system. The first change was edema, which has become generalized by the twenty-first day, each stroma nucleus being separated from its fellow and bare of all but a slight trace of cytoplasm, which streaks outward in irregular internuclear fibrils. The cross



Fig. 7.—Twenty-three day endometrium. The stroma cells near the thick walled arterioles, especially, and in dispersed units acquire more cytoplasm.

section of groups of small arterioles is seen lying among the glands. Two days later, on the twenty-third day (fig. 7), a marked change has begun in the stroma cells and in the walls of the arterioles. The latter are larger and the walls thicker. They are more numerous, and single vessels are seen coursing upward and tangential to the superficial epithelium. Most interesting is the increase in the cytoplasm of the stroma cells. This begins in those near the arterioles and on the twenty-third day is well marked. By the twenty-fifth day

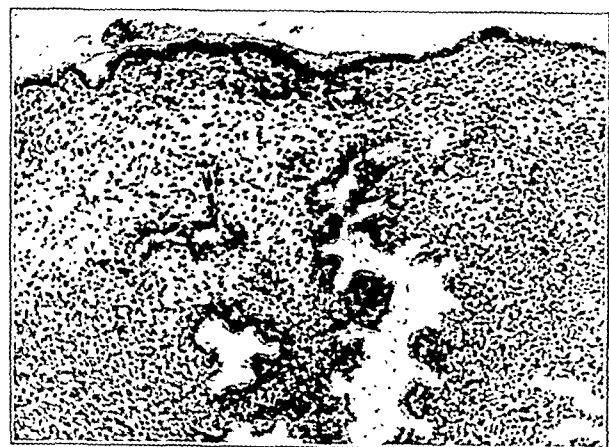


Fig. 8.—Twenty-five day endometrium. Large groups of stroma cells acquire more cytoplasm, especially near the arterioles. Those in the edematous areas are also larger. The arterioles are very prominent.

face of the cells, leaving a lucid zone underlying the nuclei. Two days later (fig. 4) this zone is well marked and the nuclei above it are lining up to lie later each beside the other near the middle of the cell. Two days later, on the nineteenth day (fig. 5), this has been accomplished and the row of nuclei has sunk distally near to the base of all the cells. Until after the next day an occasional group of nuclei will still be seen proximal to a small "zona pellucida."

Noticeable about the eighteenth day is a beginning edema of the stroma, first in patches a slight distance below the superficial epithelium. This spreads until it is generalized by the twenty-first day (fig. 6), the day on which the last vestige of the "zona pellucida" has disappeared. On the twenty-first day also the process of "secretion," which began about the seventeenth day, is well advanced. This is seen as a swelling of the epithelial cells, including the nucleus, and at first a progressive vacuolization of the cytoplasm overlying the nuclei and then a fraying of the cell margins as of breaking of the vacuoles into the lumens of the glands. These dilate and their epithelial borders become serrated, as if from crowding of the enlarged epithelial cells.

(fig. 8) this process has increased in amount and extent until much of the stroma is affected. The edema is replaced by masses of contiguous large cells with large pale nuclei and much cytoplasm. The next day, the twenty-sixth (fig. 9), the increase in the size of stroma cells has extended so that almost all the interglandular cells are contiguous.

On the twenty-seventh day (fig. 10) this solidification of the most superficial stroma becomes complete. Many

cells are indistinguishable from young decidual cells. Indeed, they are such. The glands are widely dilated and the epithelium, rid of most of its cytoplasm, approaches the cuboidal. The vascular system is highly developed and the arterioles and venules are engorged with blood. This is the predeciduum, and catamenia is at hand.

The first sign of this event, which again arbitrarily we place on the twenty-eighth day, is an influx of

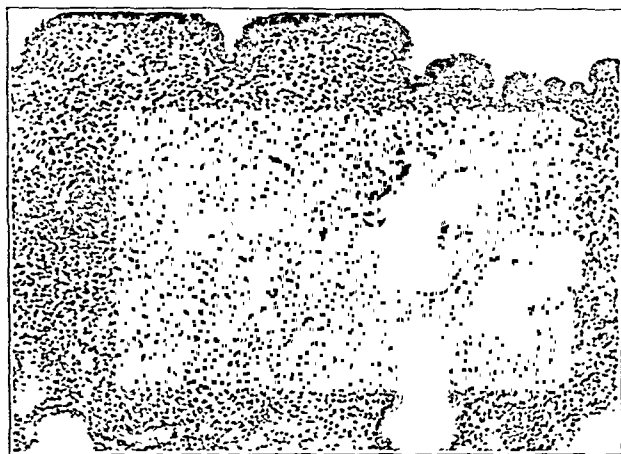


Fig. 9.—Twenty-six day endometrium. Cytoplasm of stroma cells increases so that cells become contiguous in ever-widening areas. Nuclei are larger and stain less deeply.

lymphocytes and polymorphonuclear leukocytes. These are present in the endometrium always, but normally in small numbers. They are not significant for diagnosis until about the twenty-fifth day, when they become more numerous. Late on the twenty-seventh day, just before menstruation, they appear in great numbers, being plentiful at first just beneath the superficial epithelium. Erythrocytes too are present at all stages, some because of trauma but some, we believe, normally. Rather abruptly just before menstruation, or as we would say late on the twenty-seventh day, these increase in number. They appear in clumps and, here and there below the superficial epithelium, in rows as well as clumps. This extravasation of red blood and mobilization of lymphocytes extends until the whole predeciduum is infiltrated, the stroma nuclei become pale, neutrophils appear in large numbers, the tissue is disintegrated and menstruation occurs. Such is the picture on our twenty-eighth day, which we also call first day and catamenia.

There is much practical value in this method of studying the endometrium. We have dwelt on the simplicity of obtaining the tissue. The differential diagnosis between proliferating and secreting endometrium—the former showing only estrogen influence and the latter both estrogen and progesterin effect—is also quite simple. We still find diagnosis of proliferating endometrium by days impossible, although, as has been said, there is an easily detectable difference between early proliferation and late proliferation. The day by day diagnosis of functional endometrium on an arbitrary scale, as for a twenty-seven day cycle, with ovulation on the fourteenth day, is not impossible. We believe with improvement of technic and criteria that it can be done, and with an accuracy of within one day.

For the rational clinical use of even the few potent preparations of gonadotropic substances, estrogens and progesterin already available, this method of diagnosis is of great value. It will help too in the formation and the testing of theories. By it one can determine whether

and when a patient ovulates, and, if she is anovulatory, whether any of the gonadotropic substances either from the pituitary gland or from pregnancy urine is effective. Hypoplasia may be accurately diagnosed and treatment objectively evaluated. One may perhaps determine also the integrity of the corpus luteum; i. e., whether it secretes progesterin in an amount normal in itself or in normal relation to the amount of estrogen present and for a normal length of time.

Biopsies studied in various specific conditions of abnormal menstrual behavior have furnished some interesting data; for example, in amenorrhea. Forty-eight biopsies were made on thirty-six patients with amenorrhea; i. e., patients who habitually passed at least three months without flow. Half of these showed hypoplasia, one third showed a proliferating endometrium and one sixth showed signs of having ovulated. All the latter had flowed within six months prior to the biopsy; their amenorrhea had not been of long standing. There were only five such biopsies showing secretion, from five different patients. The subsequent history of two of these we do not know. Three of them flowed soon after biopsy. We believe that the others did also, because of over 300 biopsies which showed secretory endometrium and of which we have subsequent information, only two were not followed within sixteen days by flow, and one of these two flowed on the twentieth day. We can find no evidence, in biopsy studies, of the existence of a persistently functioning corpus luteum in human beings. Even the one patient just mentioned, who did not flow after a secretory endometrium was found, subsequently showed a proliferating endometrium without evidence of function, although no gross flow intervened. As in all mammals below the primates, her endometrium regressed without flow. We believe that in the absence of pregnancy persistent corpus luteum is never an explanation of amenorrhea.

The estrogenic phase of endometrial development on the other hand may persist almost indefinitely without



Fig. 10.—Twenty-seven day endometrium. The predeciduum. The interglandular stroma is solid in large areas. The cells are indistinguishable from young decidual cells. There is beginning infiltration of lymphocytes. The glands have cuboidal epithelium.

menstruation, five of our sixteen biopsies that showed proliferation having been taken over a year after the last flowing; five other patients did not flow following the biopsy. Many patients with long standing amenorrhea, then, have a high degree of follicular activity and offer good prospects for clinical relief.

A failure or an extremely slight degree of follicle formation is found to be the cause of most long stand-

ing cases of amenorrhea and may easily occur in patients who flow infrequently during any year.

We have fifty-four biopsies from forty-five patients in whom flowing was increased and so irregular in volume and incidence as to warrant a diagnosis of metrorrhagia. Only three of these showed deficient follicle formation. One half showed evidence of good follicular activity and slightly less than one half showed signs of ovulation almost irrespective of the time

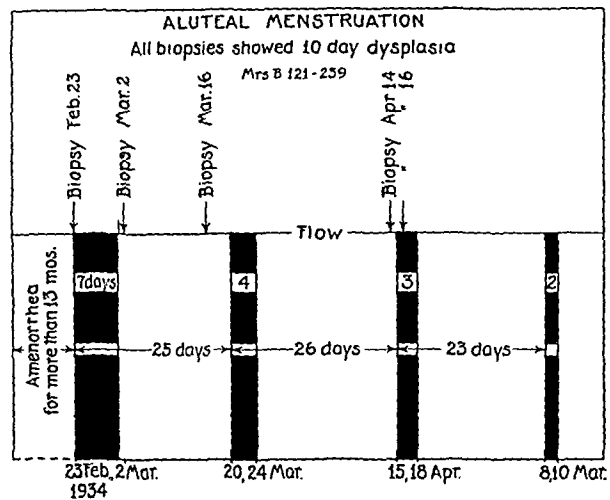


Fig. 11.—Biopsy may have precipitated flowing in this patient, who had been amenorrheic for more than one year. She flowed four times with fair regularity, the last time, however, without preceding biopsy. Examination showed that at least the first three periods were anovulatory, as, in spite of flowing, the endometrium remained stationary in a late proliferative phase.

clapsing between the last flow and the biopsy. Thus we learn that patients may flow excessively and irregularly with any degree of endometrial development. The mere presence of a functioning corpus luteum will not prevent metrorrhagia, nor will hypoplasia of the endometrium. By this method of study it is possible to distinguish between the patient with irregular catamenia and hypermenorrhea and the patient with dysfunctional uterine hemorrhage who does not ovulate—an important distinction to make if there is complaint of sterility.

An engrossing aspect of these studies is the light they throw on the question of the ovulation time in women.

We have 222 biopsies of postovulatory endometrium for which we know the date of the preceding menstruation. We are unable to correlate the dating on our arbitrary plan (that is, for a twenty-seven day cycle with ovulation on the fourteenth day) with the date of the preceding menstruation except in moderate degree for those largely selected cases in which we expected conformation and in which biopsies which were dated older than the twenty-fourth day were obtained. This lack of correlation is not surprising, since we have found what many others have shown that full proliferation may persist in the endometrium almost indefinitely and regardless of flow, suggesting the indefinite persistence in the ovary of ripe follicles capable of ovulating any time, even during an anovulatory catamenia. (Such may offer the explanation of those rare cases of fertilization occurring just before, during or after what seemed like normal menstruation.)

We have 200 biopsies of postovulatory endometrium for which we know the dates of the succeeding menstruation. This is shown in the accompanying table.

Among these biopsies we find an impressive agreement with the theory attributed to Ogino and Knaus. If we insist that ovulation takes place on the fourteenth day before menstruation, only 15.5 per cent of our biopsies are correctly dated. This is not as inaccurate as it seems, for the chance of menstruation occurring on any single subsequent date is immeasurably less than 15.5 per cent. If we accept the proposition that ovulation occurs from the twelfth to the sixteenth day before menstruation, our dating is found correct in 70 per cent of the biopsies, when the chance for error was almost infinity. If we are allowed an inaccuracy of one day in the dating, we conform to the theory in 87.5 per cent with the same chance factor of almost infinity. Correction of these figures by omission of cases in which the flow occurred on the day of the biopsy and was possibly precipitated by it, or of those largely selected cases in which the specimens were dated over the twenty-fourth day, or omission of both such groups, does not materially change the percentage of correct dating. Conversely, if one can accept the accuracy of our dating, the Ogino-Knaus theory applied to about 75 per cent of our patients.

For consideration of the latter point, it should be remembered that almost 81 per cent of the patients recorded are between 25 and 40 years of age and 63 per cent are between 25 and 35; furthermore, that they all menstruate with moderate regularity. From our biopsy data, then, the most we may at present say is that regularly menstruating women between the ages of 25 and 40 have a 75 per cent chance of ovulating between the twelfth and sixteenth days inclusive before the succeeding menstruation.

Any method of transcervical approach to the endometrium seems to have one potential quality that is good or bad according to the purpose of the instrumen-

Ogino-Knaus Theory: Corpus Luteum Functions for Twelve to Sixteen Days Before Catamenia *

		14 Days	12-16 Days	11-17 Days
All cases.....	Correct	31 (15.5%)	149 (70%)	167 (81.5%)
	Incorrect	169 (84.5%)	60 (30%)	33 (16.5%)
Omitting all cases dated over 24th day	Correct	35 (4.7%)	51 (48.8%)	78 (73.6%)
	Incorrect	101 (95.3%)	55 (51.2%)	28 (26.4%)
Omitting cases in which flow occurred on day of biopsy	Correct	31 (18.7%)	118 (71.3%)	141 (85.4%)
	Incorrect	134 (81.3%)	47 (28.5%)	24 (14.6%)
Omitting both the above groups	Correct	5 (5.1%)	51 (32.5%)	78 (70.1%)
	Incorrect	92 (94.9%)	46 (47.5%)	19 (29.9%)

* The figures show relative accuracy of theory and dating. If the Ogino-Knaus theory is correct then the dating of biopsies is correct in percentages given; if the dating is correct then the theory applies in percentages given. The eleven day group allows for a mistake of one day in the dating.

tation. In some mysterious and unpredictable way it sometimes, not always, changes the existing hormone setup. A patient with amenorrhea of persisting abnormal proliferation may flow not immediately or only once but sometimes in apparent cycles and without ovulation (fig. 11); or a patient with a similar failure of ovulation with or without flow may suddenly ovulate, as if from the effect of the biopsy.

These phenomena raise many questions that tempt digression. Is there in the cervix a nodal point of the autonomic nervous system whereby the anterior pituitary dynamo may be effected? Labor, which may or may not require the anterior pituitary, is often induced by cervical stimulation. What is the relationship between these phenomena and that of ovulation induced in the isolated mature doe by cervical stimulation? Similarly, is the slight traumatization of the endometrium in some of these patients conducive to an unusually extensive decidual response, as is seen in the pseudo-pregnancies, induced in like manner in some laboratory animals, and does this augmented reaction offer to some sterile patients a more serviceable placental site?

Whatever may be the method or explanation of these apparent consequences of endometrial biopsy, one must keep in mind the possibility of such an influence when interpreting the menstrual behavior following its use. The incidence is not constant or, we believe, so common as to destroy the utility of this method of study if applied to a very large number of cases.

Many other interesting observations have been made in these studies. Eight cases of tuberculous endometritis in sterility patients, seven of these quite unsuspected, were found. Two biopsies showed cancer of the endometrium, one of these in a patient only 35 years of age and quite unsuspected. Mallory Sr. confirmed this diagnosis. In three biopsies evidence of early pregnancy was found. One biopsy was due to a mistake in selection of patients by mixing of records in the clinic. No great harm was done. One patient gave a history which warranted clinically a diagnosis of metrorrhagia. She was, conceivably—shall we say—malingering. Another was a widow whose wishful thinking misled us. Her pregnancy was not interrupted by the biopsy.

SUMMARY AND CONCLUSIONS

The suction biopsy is a very useful method of endometrial diagnosis, better, we believe, than the punch biopsy or curettage. The specimen should be taken from high on the anterior or posterior wall of the corpus, for only here are cytologic changes complete and progressive.

Two phases of endometrial development during the menstrual cycle are cytologically distinguishable: the proliferative, attributable to estrogen, which shows well marked differences between its earlier stage and its subsequent development; the second, the secretory phase, attributable to both estrogen and progesterin. During this phase, mutations in the glands and their epithelium in the stroma and its cells are characteristic of successive days and make possible a day by day appraisal of corpus luteum activity.

Such dating of the endometrium on an arbitrary scale as for a twenty-seven day cycle with ovulation on the fourteenth day is useful for determination of ovulation, for diagnosis in menstrual disturbances and for evaluation of endocrine therapeutics.

Amenorrhea is usually due to deficient follicular development but may be present even though a proliferative endometrium shows a high degree of follicle activity and rarely in the presence of cyclic ovulation, as in subprimate mammals. We believe that in the absence of pregnancy there is never a persistent corpus luteum.

Metrorrhagia, too, may occur with any degree of endometrial development and therefore in spite of ovulation and corpus luteum formation.

Biopsy studies show that in human beings the follicle phase is variable within extremely wide limits but that at least 75 per cent of women between the ages of 25 and 40 have a corpus luteum phase of from twelve to sixteen days.

8 Cumberland Avenue.

COMPARISON OF METHODS OF ROENTGEN EXAMINATION OF THE COLON

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CHICAGO

Twenty-nine years ago I gave my first opaque enema under fluoroscopic screen control. The publications of Pfahler and a few references from foreign literature constituted the stimulus for the undertaking. Bismuth subnitrate was the opaque salt, suspended in buttermilk. The chief aim of the study was to determine the position of the transverse colon and of the right and left colic flexures. To emphasize the contrast presented by the elaborate roentgen study of the colon as practiced now, with indications for its use covering a very wide range of pathologic possibilities, I was asked to offer a review of the evolution of the technic of x-ray examination of the colon, followed by an evaluation of the different methods.

Routine practice in intestinal x-ray examinations includes the opaque meal, with appropriate screen or film observations of the opaque residues as they move along the large bowel (fig. 1), followed by the contrast enema (fig. 2) administered under screen control by the physician-radiologist himself, with appropriate film records during the course of the fluoroscopy, and subsequent observations after the patient has attempted to expel the contrast fluid. The combination of these two



Fig. 1.—Carcinoma of transverse colon easily recognized on the film following an ordinary barium sulfate meal. Easily seen on the fluoroscopic screen.

series of observations constitutes what we are pleased to call a complete gastro-intestinal roentgenologic study. Much of its value lies in the fact that it is done as a routine, and this routine is justified by the frequency with which colonic lesions are encountered when only pathologic conditions of the upper part of the abdomen are suspected and vice versa. The same justification exists for a routine complete gastro-intestinal x-ray study in every case of suspected lesion anywhere in the

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digestive tube as there is for the complete clinical work up considered good and accepted procedure in the general examination of any patient. There is the difficulty of financial objections in many cases, but radiologists have made a sincere effort to cooperate with the other clinicians in keeping their services within reach of the needy.

On the whole, it may be said that the colonic study with the opaque meal gives information more espe-



Fig. 2.—A case of multiple diverticula of the colon with obstructing peridiverticulitis, illustrating the difficulty in passing the opaque clyisma higher than the obstruction, although with a previous barium sulfate meal, residues of which are seen in the diverticula, no obstruction was noted. It is not wise to persist in the attempt to fill the colon by enema.

cially regarding function, whereas the contrast enema affords data relating to organic lesions, the two methods overlapping somewhat in their usefulness and yet often supplementing each other in a very precise manner. The opaque meal study is time consuming, sometimes extending into three days, whereas the contrast enema or some elaboration of it can be accomplished within a short time in one day. The presence of such a condition as anal insufficiency may necessitate the use of the barium meal study even though the contrast clyisma would be the method of preference. There is also a use for the oral contrast method, preferably by the employment of umbrathor, in cases in which the contrast enema has revealed a serious obstruction and the radiologist does not wish to force passage of the stricture and yet wishes to obtain information regarding the digestive tube proximal to the stricture. Haenisch of Hamburg, a pioneer in this work, in 1911 called attention to the fact that in many cases of colonic obstruction the stricture offered little hindrance to the passage of relatively dense bowel residues coming from above while resisting the passage of the fluid contrast enema (fig. 2); he thought that the long continued effort of the colon to force fecal residues caudad through the narrowed lumen resulted in the development of a funnel effect, which operated to offer a valvelike opposition to the ascent of the fluid enema. Umbrathor, being an aqueous solution of thorium dioxide, remains fluid and presents no possibility of impaction above a stricture, an accident needlessly feared if one takes the precaution to follow up the examination with subsequent

observations to note possible impaction. Finsterer saw no objection to barium sulfate for this study, for, if impacted, it could be removed by the operation that was indicated in any event. However, the use of the aqueous solution instead of the opaque salt suspension removes this objection entirely.

The contrast meal had its inception early in the history of roentgenology through the work of Cannon and Williams, Hemmeter, Rieder, Pfahler and a host of others. Air injections into the colon were practiced as early as 1907 (Pfahler, Cole and others) principally for the purpose of studying the relationship of intra-abdominal tumors lying outside the digestive tube and to afford greater visibility of the liver, spleen, gall-bladder and kidneys, the increased translucency of the air-distended bowel offering a marked contrast to the denser shadows of the organs or tumors in question.

The efforts of Pfahler and of Cole, and especially the work of Haenisch published in 1910 and 1911, definitely established the contrast enema as a dependable method of colonic diagnosis, especially in relation to gross pathologic alterations. Various improvisations of apparatus were utilized for the screen study of the contrast enema, the final and best known one being the "trochoscope" of Haenisch, the forerunner of the present day horizontal fluoroscope, widely adopted, and copied and improved. Roentgenoscopy was also greatly facilitated by the introduction of the author's foot switch, automatically cutting off the room illumination whenever the x-ray current was turned on.¹ With the fluororadiographic switch it became easy to turn the patient or tilt the table to any desired degree during the course of the screen study and to make appropriate film records without loss of time. As early as 1909 this technical procedure became a part of our routine practice. The single contrast enema, thus employed under roentgenoscopic control, is the most expeditious, simple, convenient and generally useful method of study of colonic morphology. It should be administered by the



Fig. 3.—Simple opaque enema, followed by expulsion of as much as may be possible, often reveals the site of obstruction and its nature without resort to more complicated diagnostic x-ray studies. In this case there is a carcinoma of the lower sigmoid, not as yet offering any serious obstruction.

roentgenologist himself at a rate sufficiently slow to allow adequate screen study and such fluororadiographic film records as seem required. One hears of instances

1. The author believes that in 1909 he was a pioneer in the use of such a foot switch. He later described to the engineers of a well known concern manufacturing x-ray apparatus his desire for a double fluorographic foot switch, one pedal being for use in fluoroscopy at around 5 milliamperes of current, the other for radiographic work at 50 milliamperes or more, as required. The fluoroscopic pedal also extinguished the overhead room light whenever the screen was in use. The controls were arranged before beginning the screen study, so that at any moment during the course of the fluoroscopy it was easy to interpose a cassette and make an instantaneous film record (recently called "spot film") of any desired phase of screen observations without a moment's delay. From this request was evolved the present fluororadiographic switch, which adds so much to the comfort and facility of roentgenoscopy of the colon.

in which a nurse technician or other lay assistant administers the opaque enema as she would an ordinary cleansing enema, after which the patient is removed to the roentgenographic table for a film. But this is faulty practice; it is imperative that the eyes of the physician radiologist should follow every inch of the ascent of the opaque column, for his experience and medical train-

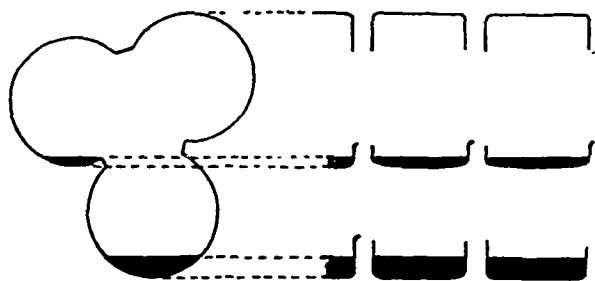


Fig. 4.—Illustration borrowed from Schinz showing diagrammatically the three rows of colonic haustra. It sometimes occurs that only two rows are visualized with opaque material, the other row being filled with stagnant nonopaque material or with gas. Under such circumstances it is possible to make an erroneous diagnosis of colon polyposis.

ing will enable him to recognize and record roentgenographically aberrations from the normal (fig. 10) which would not be otherwise discovered even on the final films. From my earliest roentgenoscopic studies on the colon it has been my practice, as a necessary part of the procedure, to turn the patient into the left oblique position (figs. 8, 11 and 12) and often also to the right, to observe the filling of the rectum and sigmoid and to make film records ("spot films") with the film cassettes placed in the most favorable position under screen guidance and exposed without interruption of



Fig. 5.—Roentgenogram made at once after evacuation of the ordinary opaque enema. A record of this kind, when the enema has been successfully expelled, demonstrates the elasticity of every inch of the colonic wall and the fact that the lumen is clear of tumors. (Contrast this film with figure 6, which under similar circumstances shows a tumor in the right half of the transverse colon.)

the fluoroscopic examination. Straight lateral films of the rectosigmoid are sometimes helpful in recording for later study the appearance of the posterior wall of the rectum, which would otherwise be missed because of the impossibility of proper fluoroscopic vision through such dense parts.

Preparation of the colon by preliminary cleansing of fecal residues seems ideal. A day or two of liquid petrolatum by mouth or perhaps even an ounce (30 cc.) of castor oil, followed by enemas in the early morning the day of the examination, causes the least disturbance of colonic function. As a matter of practice the cleansing preparation is not usually requested, for recognition of the residual accumulations of intestinal content through the defects in an otherwise uniformly even density of the contrast shadow of the colon at once furnishes data concerning colonic stasis and gives some aid in determining the type of constipation.

A careful analysis of the problem postulated in each case will often lead to the opaque enema as the first x-ray procedure in the study of a suspected colonic lesion. This is true whenever the lesion is thought to be of an obstructive or potentially obstructive nature, when the retention of the accumulated opaque materials from the previously given opaque meal above the site of

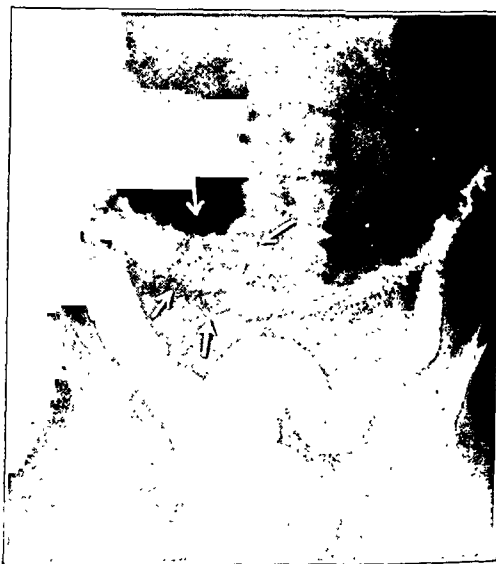


Fig. 6.—After attempt at colonic evacuation after opaque clysis, it is easily recognized that the right half of the transverse colon is the seat of an irregular filling defect around which barium residues are noted. Serial films over this part of the colon, made during fluoroscopy, confirmed the diagnosis of carcinoma.

obstruction might prove embarrassing. For example, if carcinoma of the colon is suspected, one proceeds at once to the contrast enema, supplementing it later by air injection and stereoscopic films should the conditions seem to indicate.

It remained for Fischer in 1923 to popularize the idea of the double contrast method, combining the contrast enema with air insufflation of the colon. His technic required the introduction of the ordinary contrast enema of about 1 liter, administered under roentgenoscopic control and assisted by manipulation with the palpating hand or by turning the patient, after which a roentgenogram was made. He then proceeded to make an inflation of the colon without much regard for possible overdistention, although he did sometimes allow the patient partially or completely to evacuate before injecting the air. His patients were prepared by preliminary administration of a laxative sufficient to clear the colon of all foreign material, sometimes supplemented by cleansing enemas. Fischer introduced the enema by the gravity method and the air by an ordinary handblower. He thought a mixture of about four parts of air to one of opaque clysis desirable, and he placed the patient in whatever position was most suitable for

demonstrating the segment of colon under study. He particularly favored the right and left lateral positions, with the rays directed horizontally, parallel with the floor, and the film held vertically, and he evolved an elaborate analysis of the various fluid levels and mural contours.



Fig. 7.—So-called spot film made with a fluororadiographic switch, under fluoroscopic control, without interruption of the fluoroscopic examination. Fine detail is recorded, as in this case of carcinoma of the descending colon.

The next stage of technical progress in colonic investigations with the roentgen rays was the development of methods for showing the internal mucosal relief of the digestive organs (figs. 5, 6, 8 and 13). Akerlund, Berg, Chaoul, Schwarz, Frik, Gilbert and many others might be mentioned, all of them basing their studies on

and particularly for the discovery of small polypoid growths (fig. 13) and mucosal ulcerations.

Proper double contrast study for delineation of the mucosal pattern requires thorough preparatory cleansing of the colon to remove scybala, organic debris, mucus and the like. This is best accomplished by the administration for several days of liquid petrolatum, or by 25 or 30 Gm. of castor oil administered the night before, with ordinary cleansing enemas of tap water rendered slightly astringent with 1 per cent of tannic acid. These should be given warm, at low pressure, with the patient lying supine and with the enema tip inserted not more than an inch (2.5 cm.). The last cleansing enema should be terminated an hour or more, better three hours, before the attempt at x-ray study. The use of salines or other purgatives should be proscribed, for they provoke hyperemia and turgescence of the mucous membranes, as do also strong soap enemas, and lead to colonic spasticity and retention of the opaque enema, the expulsion of a goodly portion of which before the insufflation is so necessary to success. Such preparation is contraindicated in suspected acute inflammations, such as appendicitis, sigmoiditis or diverticulitis, in suspected acute obstruction and in advanced cachexia or impending syncope. The insufflation becomes an unsatisfactory method when the patient cannot expel the opaque enema. In marked atonicity of the colon, the use of a cold contrast enema enables the patient to make a better expulsion of opaque material preparatory to the insufflation.

I was called in consultation in two cases of colonic diverticula in which rupture of a diverticulum occurred during rectosigmoidoscopic manipulations, one of them an examination and one a treatment. In both cases an emergency operation was demanded as a life-saving measure. But in addition to gross rupture necessitating immediate laparotomy there is the somewhat greater likelihood of the passage of air through small openings in diverticula with subsequent infection of the peri-

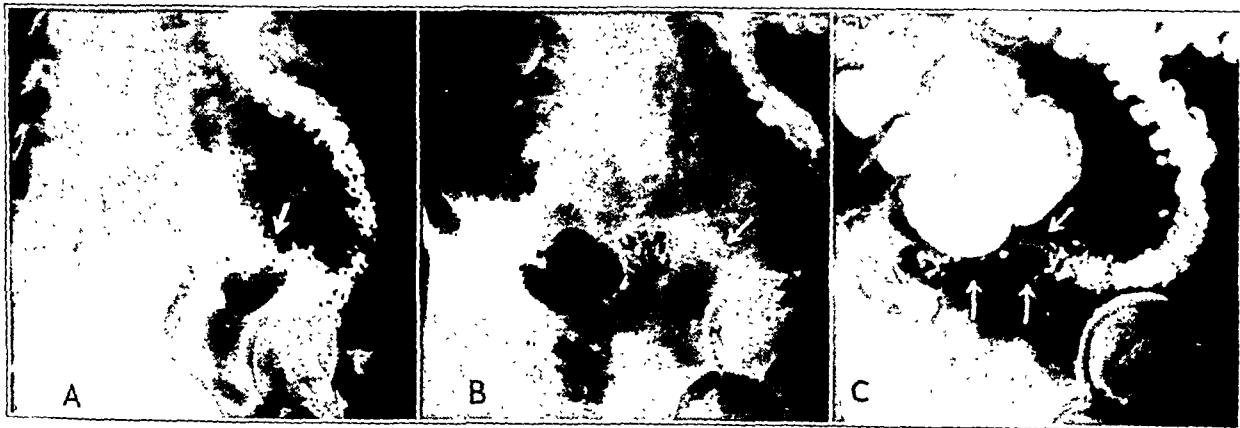


Fig. 8.—Case illustrating the value of patience and deliberation in x-ray study of the colon. The patient presented an obstinate constipation with marked left-sided tenderness coinciding with a resistant area. At A one sees a filling defect in the sigmoid visualized with the ordinary opaque clyster. At B this stricture in the sigmoid is further shown by injection of air following partial evacuation of the opaque clyster. The diagnosis as to whether the stricture is malignant or benign is still in doubt. By reinjecting some opaque material and waiting five or six hours (C) the presence of multiple diverticula is recognized, and the diagnosis of diverticular tumor is clear.

the original work of Forssell. In this country Weber, Gershon-Cohen and others have led in reestablishing interest in air injections of the colon following the barium sulfate enema and have brought the "combined method" or "double contrast method" to a high state of refinement in technic and interpretation in the search for some means of making an earlier diagnosis of carcinoma of the colon, in differentiating various types of colitis

toneum. Overdistention with the opaque enema may also be somewhat hazardous for the same reason.

There are also the cases in which insufficiency of the anal sphincter inhibits the use of either the barium sulfate enema or the insufflation of air. In such, the oral use of umbrathor or of some similar preparation is likely to give some help. Schwarz has described a method of introducing the contrast enema through a

rectal tube surrounded by a cotton pack and held in place by adhesive plaster.

In daily practice it transpires that the examination of the colon usually begins with the contrast enema. The patient is in the supine position, with the tip inserted only an inch or so within the sphincters. The examiner's eyes are duly prepared for roentgenoscopy. Cassettes are ready at hand and the controls are so



Fig. 9.—Annular carcinoma of rectosigmoid associated with diverticula of the sigmoid. Resection of the tumor required removal of a portion of the fundus of the bladder and the sigmoid to a point above the obstruction, with end-to-end anastomosis.

arranged that immediate x-ray films may be made without loss of time or interruption of the screen study should something be noted worthy of record. The flow is started and careful scrutiny of the lower part of the rectum and anal region is begun the moment it commences to visualize. Occasionally at the moment of

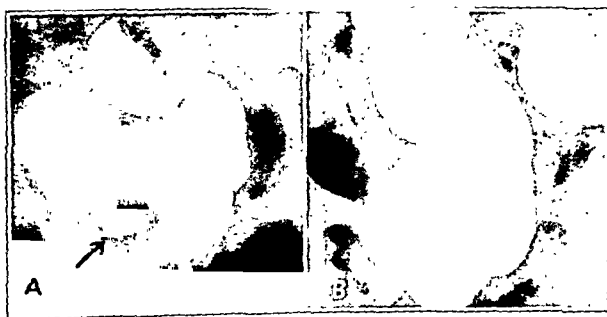


Fig. 10.—This case illustrates the necessity of having a physician-radiologist conduct the entire examination of the colon by enema under fluoroscopic control. In this case a definite filling defect is seen in the rectum before it becomes completely filled with the opaque enema; for with complete distention with the opaque enema the defect due to the carcinoma is entirely hidden by overlying shadows.

beginning the opaque injection a small anal lesion (fig. 10) can be detected which is soon overshadowed by the rectal mass.

As the opaque column begins to ascend the sigmoid, the patient is partially turned on one side, usually the left, so that every inch of the advancing colonic shadow may be studied. Palpation is employed as needed. Care is taken to avoid confusion of small gas or air pockets

in one of the colonic haustra (fig. 4) with a polypoid growth. In spite of all precautions, small rounded fecal residues may lead to similar confusion. Serious error may result from failure to recognize these possibilities. Straight lateral films with the patient turned completely on the left side sometimes bring out small defects in the rectal shadow from intrinsic disease or from extension of disease from the prostate, bladder or other genito-urinary organ.

These observations completed, the patient is turned once more on the back and the progress of the opaque enema further observed. Too much haste must be avoided. A relatively small amount of contrast material will suffice to visualize the entire colon without overdistending it if one is not too precipitate. Impatience and press of work are incompatible with successful fluororadiography of the colon, especially if one wishes to combine contrast methods. Overdistention must be avoided if it is desired that the patient shall be able to make a satisfactory expulsion of the contrast fluid preparatory to the possible use of insufflation.

Again the patient is turned as needed to bring into unobstructed screen vision the two legs of the splenic and hepatic flexures. Intestinal coils may be pushed aside by palpation through the abdominal wall with the protected hand or the nonopaque wooden palpator.

Finally attention is given to the cecum. If the colon is of the irritable spastic type, the head of the opaque



Fig. 11.—It is necessary as a routine practice to make an oblique film of the sigmoid in all colonic examinations (B) as well as a film in the usual (A) anteroposterior or postero-anterior projection. In this instance the diverticula would have escaped detection had not the oblique observation been employed.

column will have reached the cecum quickly, and in most cases several feet of ileum will fill. Marked insufficiency of the ileocecal valve is one of the roentgenologic characteristics of the irritable colon, as was shown by Guido Holzkecht and Singer in Vienna twenty-five years ago. In cases of suspected ileocecal tuberculosis this filling of the ileum is helpful, permitting scrutiny of the terminal coils of ileum for possible ulceration. It is also helpful in granulomatous ileitis. But when it is desired to make insufflation studies after expulsion of the contrast enema, this filling of the terminal ileum by the opaque enema constitutes a distinct complication.

More satisfactory study of the cecum and ascending colon is possible if the patient is allowed first to expel part of the contrast enema, the object being to clear the rectum and sigmoid and to diminish the amount of opaque material in the rest of the colon distal to the hepatic flexure. This is particularly required when the cecum is elongated so that it extends into the true pelvis or when the sigmoid loop turns to the right. With the protected hand or palpator the cecum may be moved about to test its mobility and to make compression for the purpose of bringing out small defects on the anterior or posterior walls. This maneuver also insures complete filling of the cecum and ascending colon and

thorough admixture of the opaque material with any residual nonopaque residues. With such palpation and compression it is possible to detect even small ulcerations, polypi and diverticula on the anterior or posterior walls which might otherwise escape recognition. Compression may also be accomplished by interposing a loofah pad and making pressure with it by pushing on

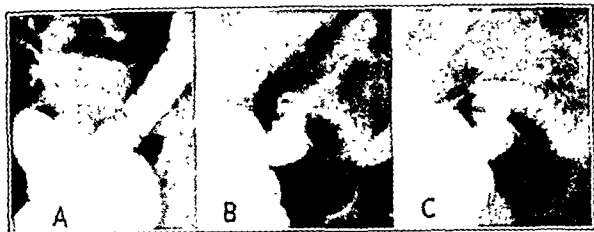


Fig. 12.—Diverticulitis of the sigmoid completely hidden in the usual anteroposterior or postero-anterior film (A) but nicely visualized in the oblique projection (B). The differentiation between carcinoma and diverticulitis was based on the difference in caliber of the sigmoid at the site of the lesion (B) following the administration of antispasmodics (C). At operation the surgeon was undecided as to the diagnosis and did a colostomy. Five years later the patient is still in excellent health and the colostomy is still not closed.

the screen. These devices together with appropriate turning of the patient usually permit satisfactory study of the cecum, appendix and terminal ileum. The cecal region is perhaps the least satisfactory of all segments of the colon for study with insufflation because of the confusing shadows resulting from air-filled coils of terminal small bowel, and it is here that the single contrast enema least needs supplementing.

Sometimes the patient expels the enema so completely that it is necessary to make a supplementary injection and partial expulsion before proceeding with the insufflation; but usually the difficulty is that the colon is insufficiently clear of the opaque fluid or that a satisfactory coating of the mucosa is not achieved. It is sometimes best to wait a little while, ten or fifteen minutes, before asking the patient to evacuate, and then he should be advised not to attempt too thorough expulsion of the contrast enema. It is better to evacuate too little and be sent back several times. Too violent expulsive efforts are likely to eliminate the mucosal coating completely. At once, after the proper degree of evacuation, as noted on the screen, has been achieved, another film or two may be exposed and the insufflation made. If the evacuation is still insufficient, the patient may be given a drink of ice water or an injection of double strength solution of posterior pituitary or of pitressin.

It will be apparent to those not personally familiar with the double contrast method that it is very much a time-consuming proposition, and in a busy office it can be employed only when there seems definite indication for it. Simply to inflate every colon after the routine contrast enema and evacuation will result in a high percentage of useless effort; for the resulting films, even though stereoscopic as they should always be, will hardly lend themselves to accurate interpretation unless they have been made with screen guidance as to position and moment of exposure. At best, many of the insufflation films are disappointing. Even when apparent polypoid growths are noted, the examination needs repetition before conclusions are drawn, unless it is possible in the primary examination to turn the patient in such favorable positions and, at time-consuming intervals, to differentiate between polypi, small gas bubbles and retained scybala.

There is another diagnostic pitfall in relation to polypi; viz., small boluses of gas in the third row of haustra (fig. 4). Ordinarily in the flat film one sees only two rows of haustral sacculations, since most of our studies are made with opaque or relatively opaque contrast mediums and without stereoscopic films. But the longitudinal bands of the colon and the haustral contractions form three rows of sacculations, the third one of which tends to accumulate small quantities of air or gas which, by being superimposed on the other shadows, may simulate polypi.

Still another device may aid in recognizing small intraluminal tumors, provided they exceed a centimeter or so in diameter; viz., observation of the contracted colon following expulsion of the contrast enema. This may show a localized fusiform enlargement of the bowel representing the localized bulging of the visualized mucosa where the colonic walls are propped apart by the nonopaque and otherwise invisible tumor mass (figs. 5 and 6).

The mucosal pattern method is also of value in selected cases. Sometimes the mucosal pattern is nicely exhibited spontaneously during the single contrast method or after partial expulsion or after insufflation. For artificial demonstration of the internal relief of the bowel without insufflation, the same special pains must be taken to cleanse the colon as with the preceding methods; then one injects slowly and without overdistention the opaque material (colloidal thorium or other agent selected), after which compression is made and



Fig. 13.—An air injection of the colon after expulsion of the opaque clysis (the combined method, so called), is sometimes valuable in showing up polypi. The definite diagnosis of polypi should not be made even in such a case as this without duplicating the result at another examination by similar technic.

maintained at suspected sites while Potter-Bucky diaphragm films are made for record and further study. Such films are preferably stereoscopic.

The inconvenience of the artificial mucosal relief method is probably out of proportion to its practical importance. To those who are especially devoted to this method, Schwarz remarks that the expensive

umbrathor has an astringent content which probably explains its usefulness. If an ordinary contrast enema is rendered slightly astringent by the addition of 1 per cent tannic acid it seems to answer the purpose equally well at a fraction of the cost. Especially in cancer it has not yet been shown that the demonstration of the mucosal pattern aids materially in the diagnosis. The presence of an intact mucosal relief pattern does not exclude carcinoma, for in some cases, especially the early ones which it is so desirable to recognize, the lesion may make a considerable submucous extension before breaking through the mucosa. More important than the mucosal relief pattern is the constant finding of a circumscribed narrowing of the lumen or encroachment into the lumen, and a delineation of the exact contours of the afferent and efferent stretches of mucosa in the vicinity of the defect. The mucosal pattern method depends chiefly on one's success in coating with the opaque materials the wall of the colon so well that the lateral contours of the mucosal lining are traceable as accurately as though drawn in with a sharp pencil.

55 East Washington Street.

Clinical Notes, Suggestions and New Instruments

THE PRIMARY CUTANEOUS TUBERCULOSIS COMPLEX

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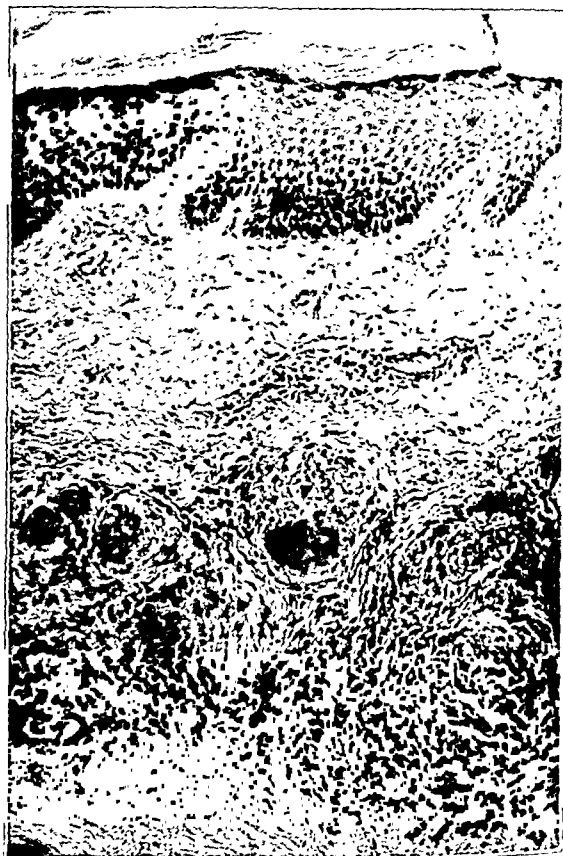
The importance of differentiating between the lesion found in first infection tuberculosis and that resulting from reinfection was recognized first by Ghon¹ in 1912. Since then it has been customary to think of the primary tuberculous lesion, found most frequently in childhood, as confined chiefly to the lung, because most of his cases were of this type. This is probably true; but if the site of initial entrance of the tubercle bacillus is through the skin the resulting lesion differs from the well recognized types of adult skin tuberculosis (*verruca necrogenica*, *lupus vulgaris* and *tuberculosis colliquativa*) in a manner similar to that in which the childhood pulmonary lesion differs from the adult pulmonary lesion. This concept is not new, as Ghon in his original communication reported one case of primary skin tuberculosis as well as several cases in which the site of entry had been the tonsil or bowel. Until recently, however, there has been little attempt to differentiate between the rather characteristic first infection lesion of the skin and that produced by reinfection.

The basis of our dermatologic knowledge of the primary cutaneous complex was laid in 1926 by Bruusgaard.² The literature was thoroughly reviewed by Krantz³ in 1931 and by Michelson⁴ in 1935.

Bruusgaard² gives the following definition: "The characteristic feature of infection occurring in a previously tubercle free organism is the so-called 'primary complex,' consisting of a primary tuberculous sore plus a definite and often very pronounced swelling of the regional glands. The spreading of the bacilli to the regional glands is frequently shown by a clearly marked lymphangitis. The dominating feature of this symptom complex is the great swelling of the glands, of acute onset, with caseation." The lesion is necessarily confined almost entirely to children, although authenticated adult cases have been reported. The lesion is initiated by some injury to the skin and usually commences as an ulcer with an associated

lymphangitis and lymphadenitis. The ulcer is usually small, the edges are raised and slightly undermined and the floor is dark red and covered with fine granulation tissue, from which there comes a thin yellow serous exudate. The surrounding skin is purplish red and indurated. Although it does not differ markedly from an indolent ulcer caused by a streptococcal or staphylococcal infection, it frequently resembles the primary lesion of syphilis, from which it derives the name "tuberculous chancre."

Unlike the reinfection type of skin tuberculosis, the lesion is accompanied by an acute lymphangitis and lymphadenitis similar to that which is found in the primary pulmonary lesion. In a few weeks the ulcer may heal while the regional lymph nodes continue to enlarge, soften and finally break down. Thus,



Section of skin removed from the thumb, showing a tuberculous lesion situated in the dermis. Three tubercles are seen, each consisting of a mass of epithelioid cells, lymphocytes and a few giant cells (X 140).

suppurating tuberculous glands in the groin may be explained by a hitherto unsuspected lesion hidden between the toes, as occurred in a case reported by Stokes.⁶ The ulcer may spread by the formation of small lupus-like nodules or, if the ulcer becomes epithelized, it may resemble a small patch of lupus vulgaris.

The diagnosis of the condition is based on the presence of a local ulcerated lesion accompanied by lymphatic involvement, on a previously negative tuberculin reaction which becomes positive and, finally, on biopsy and guinea-pig inoculation of the lesion or regional lymph nodes.

REPORT OF CASE

A white man, aged 25, was engaged on the staff of a tuberculosis sanatorium. In the course of his duties, which included autopsy examinations, there developed at the site of what was first thought to be a mosquito bite on the right thumb a small ulcerated lesion about 5 mm. in diameter. This was accompanied by a rise in temperature to 100.2 F. and an acute lymphangitis which extended from the lesion to the axilla.

6. Stokes, J. H.: Primary Inoculation Tuberculosis of the Skin with Metastasis to Regional Lymph Nodes, *Am. J. M. Sc.* 160:722 (May) 1925.

From the Department of Pathology, University of Alabama School of Medicine.

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2. Bruusgaard, E.: *Klinische Beiträge zur Pathogenese der Hauttuberculose*, *Arch. f. Dermat. u. Syph.* 152:465, 1926.

3. Krantz, W.: *Der Tuberculose Primärkomplex an der Haut*, *Zentralbl. f. Haut- u. Geschlechtskr.* 39:1 (Nov. 5) 1931.

4. Michelson, H. E.: *The Primary Complex of Tuberculosis of the Skin*, *Arch. Dermat. & Syph.* 32:589 (Oct.) 1935.

5. Bruusgaard, E.: *The So-Called Primary Complex of Tuberculosis in the Skin*, *Brit. J. Dermat. & Syph.* 46:113 (March) 1934.

One of the axillary lymph nodes was enlarged to the size of a walnut and was moderately painful. The lesion on the thumb was slightly raised, red and indurated and from the ulcerated center a thin serosanguineous exudate could be expressed. Repeated darkfield examinations were negative for *Spirochaeta pallida* and preparations stained for acid-fast organisms were negative.

The lesion remained unchanged and lesser degrees of lymphangitis recurred intermittently for almost two months. The intradermal tuberculin reaction, taken three weeks after the onset of the illness, was strongly positive (four plus) with 0.1 cc. of 1:1,000 old tuberculin.

The possibility of this being a primary tuberculous infection was strongly entertained. Three years previously (1932) the intradermal tuberculin reaction had been negative to 0.1 cc. of 1:1,000 old tuberculin and roentgenograms of the chest revealed no evidence of tuberculosis. Since then the patient had been in good health and a routine chest plate taken in 1934 showed no pulmonary lesion.

Two months after the onset the ulcerated surface became epithelized but there remained a slightly firm, raised, reddish lesion with an irregular margin in which small "apple jelly" nodules about 1 mm. in diameter could be seen on diascopic examination. This lesion grew slowly until in January 1936 (six months after onset) it was 1 by 0.75 cm. The axillary lymph node became large and tender again, and the lymphatics in the arm and forearm became shortened, cordlike and easily palpable, though not tender, and made full extension at the elbow difficult.

At this time the primary lesion on the thumb was removed widely by the cutting cautery and a Thiersch graft from the thigh was applied. By the end of a week the lymphatics were no longer palpable and the axillary lymph node had receded in size.

Microscopic examination of the tissue removed revealed a lesion situated in the dermis and consisting of single and conglomerate foci containing epithelioid cells, lymphocytes and a few giant cells. In the center of some of these masses there was definite caseation. Acid fast organisms could not be found by histologic examination, guinea-pig inoculation or attempts at culturing on artificial mediums.

Three months later (April 1936) the axillary lymph node was removed. It measured 2 by 2 by 1 cm. The cut surfaces showed two pale yellow caseous regions which occupied about one half of the node. The capsule was indistinct and in places the surrounding fat seemed to be infiltrated. Direct smears from the caseous region showed acid fast rods corresponding in number to Gaffky II. Guinea-pig inoculation with this material resulted in the development of tuberculosis.

One year following the onset of the illness the intracutaneous tuberculin reaction was moderate (two plus) to 0.1 cc. of 1:10,000 old tuberculin. There was no demonstrable recurrence of the lesion on the thumb or in the axilla, and the general health of the patient was excellent.

COMMENT

It is difficult to believe that a man, aged 25, who had lived in a large city since childhood and had been engaged in hospital work for a period of four years, should not have had some previous tuberculous infection. The negative tuberculin reaction before the onset of illness indicated that he was not allergic to the organism, and that he had little resistance was evidenced by the acute ascending character of the lesion with no apparent effort to fix the organisms at the primary site. It is well known that after a childhood infection recovery may be followed years later by a loss of allergy. So far there has been little or no evidence to show that acquired resistance also vanishes. Rich and McCordock⁷ state that they have seen a few adult patients with pulmonary tuberculosis in whom the anatomic lesions and course resembled the primary infection. They suggest the possibility of this being the result of a fresh infection from without in an individual who, if ever having had resistance, has completely lost it. They continue to say, however, that the infrequency of reactivation of the remaining bacilli in the pulmonary and node lesions of the childhood "primary complex"

is strong evidence that resistance once acquired in childhood is rarely completely lost. Although the point is virtually impossible to prove, it seems quite possible that the case which is reported here is not a true first infection but has occurred in an individual who has lost any allergy and resistance that might have been produced by a previous infection, and that reinfection has resulted in a lesion identical with the "primary complex."

It is interesting to note the change in type of the lesion that took place as the patient was apparently developing resistance to the infection. The acute lymphangitis subsided and after two months the lesion on the thumb changed from an open ulcerated "tuberculous chancre" to a more localized productive type of lesion resembling a common type of adult reaction—*lupus vulgaris*.

SUMMARY

This case seems to fulfil all the prerequisites for a diagnosis of primary cutaneous tuberculosis complex in an adult. The onset was marked by an acute ulcerative lesion on the thumb with an accompanying lymphangitis and axillary lymphadenitis. The intradermal tuberculin reaction, which had previously been negative, became strongly positive. The histologic picture of the local lesion resembled tuberculosis, and the tubercle bacillus was obtained from the axillary lymph node.

COMPLETE COMPOUND DISLOCATION (INTERNAL LATERAL) OF THE ANKLE JOINT WITHOUT FRACTURE, WITH PRIMARY HEALING

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AND
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A complete dislocation, simple or compound, at the tibiotalar joint without a fracture is extremely rare.¹ A lesion of this type when it does occur is usually compound. The ligaments about the ankle are usually stronger than the malleoli, and for this reason a fracture of one or both of the malleoli usually

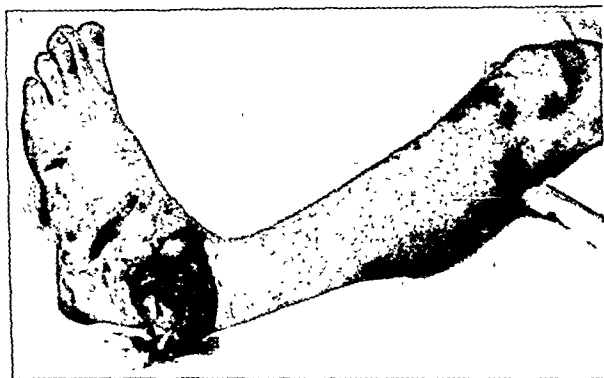


Fig. 1.—Complete compound dislocation (internal lateral) of the left ankle joint. Note that the lower tibiofibular articulation is intact.

accompanies such an injury, since the bone in most instances breaks before the ligaments will rupture.

Döhler² states that a lateral dislocation of the ankle without a fracture of one or both of the malleoli is possible only when the joint between the tibia and the fibula is broken. In the case reported here a separation did not occur at the tibiofibular joint, as shown by roentgenograms and by open inspection of the joint.

Complete dislocations of the ankle joint are classified as follows, according to their order of frequency: (a) posterior, (b) anterior, (c) external lateral, (d) internal lateral (medial) and (e) divergent or upward.

From the Orthopaedic Clinic of the Employees' Hospital, Fairfield, Ala.

1. Key, J. A., and Conwell, H. E.: *Management of Fractures, Dislocations and Sprains*, St. Louis, C. V. Mosby Company, 1934.

2. Böhler, Lorenz: *Treatment of Fractures*, fourth English edition translated by E. W. Hey Groves, Baltimore, William Wood & Co., 1935.

7. Rich, A. R., and McCordock, H. A.: *An Inquiry Concerning the Role of Allergy, Immunity and Other Factors of Importance in the Pathogenesis of Human Tuberculosis*, Bull. Johns Hopkins Hosp. 44: 273 (May) 1929.

The case here reported is of interest because:

1. It is a rare lesion, the only one of its type we have seen.
2. It definitely proves that ligaments about a major joint do rupture in certain instances without pulling away the bone or periosteum to which they are attached.
3. There was no associated fracture.
4. The wound healed without infection.
5. The end result was excellent.

REPORT OF CASE

R. L. C., a railroad engineer, was admitted to the Employees' Hospital March 7, 1936, shortly after he had been in a railroad accident in which he received a serious injury to the left ankle and multiple steam burns to the lower extremities.

Examination on admission revealed a complete compound medial dislocation of the left ankle joint. The wound was very dirty, and particles of coal were ground into the tissues. The lower articular surfaces of the tibia and fibula were plainly visible, protruding from the wound (fig. 1). The foot was cyanotic and cold. Pulsations in the vessels of the foot were absent. The patient also had second degree burns about both ankles and on the right leg and back.

A roentgenogram was made which revealed a complete medial dislocation at the tibiotalar joint, with no associated fracture (fig. 2).

Operation was performed under general anesthesia. The wound was thoroughly cleansed and débridement was performed. The dislocation was reduced simply by traction on the foot and countertraction on the flexed leg. The ligaments on the open side of the ankle were reapposed and sutured with



Fig. 2.—Anatomic deformity with no fracture present.

interrupted chromic catgut. The skin was sutured with silk-worm gut and a small rubber drain was placed in the wound. This was removed forty-eight hours later.

Owing to the fact that the patient had a second degree burn over the ankle, a Steinmann pin was applied through the os calcis and traction used, reduction being maintained thereby. A gauze dressing was kept on the wound, which was inspected daily until healing of the compound wound and most of the acuteness of the burns had subsided. It was desirable that a plaster cast be applied as soon as possible in order to relieve undue stretching of the torn ligaments about the ankle joint as the result of the traction. A cast was therefore applied about two weeks following injury, when the burns had improved sufficiently to warrant the application of it. The cast extended from the base of the toes to the upper third of the thigh. The Steinmann pin was then removed from the os calcis. A good sized window was cut away over the compound wound, which

had healed within about three weeks following injury as well as the burns.

The original cast was removed one month following its application, at which time another cast was applied to the foot and leg, extending from the base of the toes to the upper third of the leg. This cast was removed two weeks later. The patient was then fitted with a brace attached to the shoe heel, with a joint at the ankle. He began walking with this support and was discharged from the hospital to continue active weight bearing without the aid of crutches.

He was last seen in the orthopedic out clinic June 5, 1936, when he was walking without pain or discomfort, except for a slight arch strain, which was relieved with a sponge rubber arch support. Roentgenograms showed the tibiotalar joint to be normal. The ankle was not swollen and there was full motion with normal stability (fig. 3). He returned to his original work without any disability. He was advised to wear the metal brace for another month following this examination.

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A SIMPLE PLIABLE FINGER SPLINT

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During the course of my intern service at Charity Hospital, New Orleans, I came in contact with numerous infections and disorders of the phalanges, both in the surgical wards and in

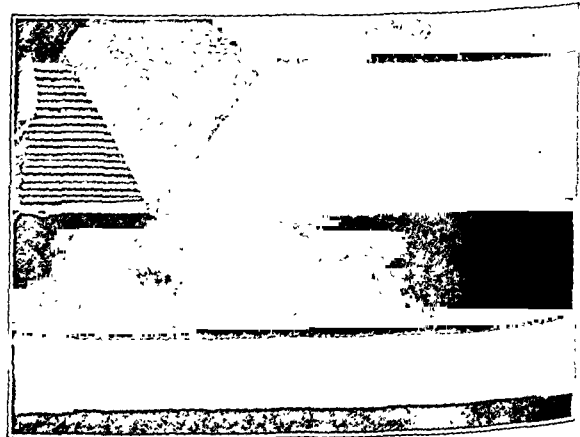


Fig. 1.—Detailed construction of splint.

the outpatient dispensaries. I found that, in treating these conditions, immobilization for a short period with the use of a simple finger splint in addition to the usual hypertonic wet dressings shortened the duration and intensity of symptoms and hastened the healing process.

I have done extensive reading among the numerous articles dealing with finger splints, and so far I find that the splint generally used in such conditions is the ordinary tongue depressor. After using this splint several times on miscellaneous infections about the finger tip, I noticed certain disadvantages:

1. The splint was hard and, if applied tightly, became painful to the patient after several hours.
2. It will not conform to a rounded surface, as it is not flexible.
3. It required padding.
4. It is very cumbersome to use on the hands of children.

Seeing the need for a simple splint that could be made with materials to be had in any physician's office, I finally devised what I think is a simple pliable finger splint. The splint consists of a parallel row of wooden applicators impinged on a layer of adhesive tape with a similar layer superimposed. A small margin is left on each side and folded over, making the splint water tight.

For my own use I have constructed two sets of splints, using one-inch and two-inch widths of adhesive tape. The one-inch splint may be used in infections of the finger tip, such as felons, paronychias and nail avulsions. In dealing with a felon it is advisable that the splint be applied to the volar surface of the finger, thus protecting the sensitive tip from trauma. In dealing with paronychias and nail avulsions the order is reversed, the splint being applied to the dorsal surface.

This splint can be used satisfactorily with wet dressings and need not be removed in order to soak the infected finger. The splint is water proof and does not become soggy or fall apart.

I also found that the one-inch splint could be used in simple phalangeal fractures without displacement of the fragments, when only immobilization is desired and traction is unnecessary. In using the full length one-inch splint in this manner, a satis-

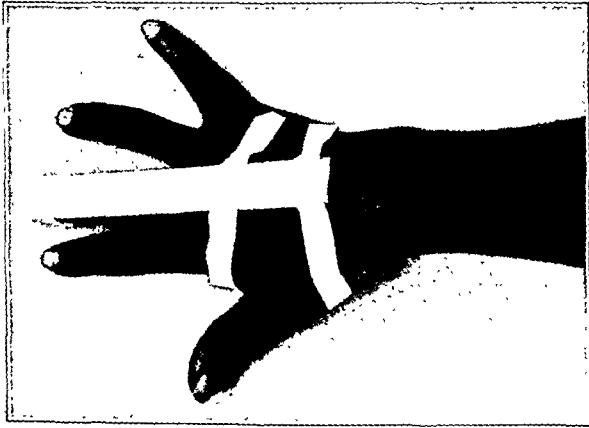


Fig. 2.—One-inch anterior splint.



Fig. 3.—Lateral view showing anterior one-inch splint.

factory immobilization at the metacarpophalangeal joint is secured. When additional strength is desired, both an anterior and a posterior splint may be used, held securely in place with one-inch gauze bandage.

The two-inch splint is used for immobilizing the thumb and little finger, serving a double purpose both for immobilization and for abduction.

ADVANTAGES

1. The materials used in this splint are cheap and easily available.
2. It is slightly elastic and also molds to fit the curved surface of the finger.



Fig. 4.—Two-inch splint for abduction and immobilization of thumb.

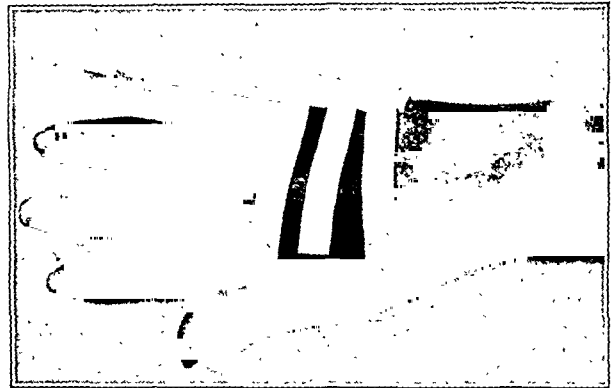


Fig. 5.—Two-inch splint for immobilization and abduction of little finger.

3. The splint can be cut to the desired length with ordinary bandage shears, the cut edge being then covered with a small strip of adhesive tape.
4. It is light and neat and requires no padding.
5. It fits snugly and is easily held in place with one-inch gauze bandage.

THE MYXEDEMA HEART

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Since Zondek¹ first reported myxedema heart in 1918 there has been an increasing number of cases recorded. In 1925 Fahr² could find but eight cases with roentgenologic and electrocardiographic studies. At that time he described three cases that he had seen during the past year, one of which was reported in detail and two in outline. In 1932 he³ described the further progress of one of the preceding cases and reported five additional cases that he had seen in the preceding eight years. Of seventeen cases of severe and moderately severe myxedema, thirteen showed signs and symptoms of heart failure, of which five were severe.

Willius and Haines⁴ in 1925 referred to Fahr's first paper and reported a study of 162 cases of high grade myxedema

From the Medical Service of the Station Hospital, Fort Sam Houston, Texas.

Read before the Bexar County Medical Society, San Antonio, Texas, Nov. 5, 1936.

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3. Fahr, George: *Myxedema Heart*, Am. Heart J. 8: 91-101 (Oct.) 1932.

4. Willius, F. A., and Haines, S. F.: *The Status of the Heart in Myxedema*, Am. Heart J. 1: 67-72 (Oct.) 1925.

without finding a single characteristic case of myxedema heart. One hundred and forty-eight (91 per cent) were free of subjective or objective signs of organic cardiovascular disease; eleven (7 per cent) presented evidence of such organic disease but only one was appreciably influenced by thyroid therapy. However, in twelve cases the electrocardiographic changes disappeared after treatment with thyroid. Willius⁵ recently stated that there was little doubt that occasionally the syndrome is observed in myxedema and that the heart participates in the myxedematous process, but he objects to the term "myxedema heart" on the ground that there has been no necropsy report of an authentic case. Excellent reviews of the literature with added cases have recently been reported by Lerman, Clark and Means,⁶ and by Ohler and Abramson.⁷

The characteristic features have been a marked increase in the transverse diameter of the heart, feeble pulsations as viewed

cardiogram made. The patient was discharged March 23, 1935, on her own request.

May 7 she was admitted to the medical service, complaining of marked weakness, persistent diarrhea, with burning pain in the epigastrium, dermatitis on the hands, wrists and elbows, and numbness of both hands. Examination showed marked

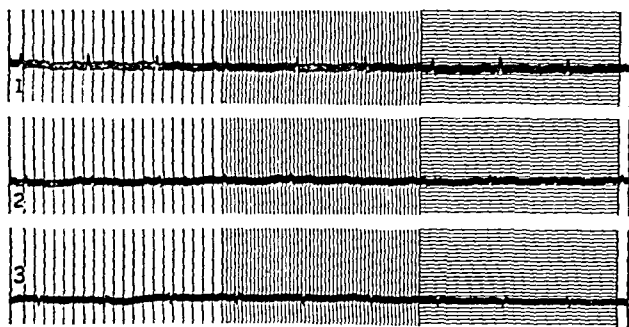


Fig. 1.—Electrocardiogram of June 17, 1934, before administration of thyroid. Basal metabolic rate —38 per cent.

by the fluoroscope, and low amplitude of complexes with flattening of the P waves and with low or inverted T waves. Abnormal axis deviation has also commonly occurred.

Shortness of breath is a common complaint and a few patients have precordial pain. Moderate to severe anemia of the hypochromic type and uterine hemorrhages have been frequently reported. A number of the cases have shown elevation of blood pressure, though these have usually been associated with

arteriosclerosis or a history of preexisting hypertension. The changes in blood pressure following treatment have been variable.

REPORT OF CASE

Mrs. R. L. W., a married woman, aged 42, was first admitted to the surgical service March 7, 1934, with a history of persistent uterine hemorrhage of two months' duration. The uterus was moderately large and it was thought that there was possibly an intramural fibroid tumor. Blood count showed hemoglobin 30 per cent, red blood cells



Fig. 2.—Teleoroentgenographic study, Aug. 4, 1934. Transverse diameter of heart 18.5 cm.; of chest 26 cm.

2,240,000, white blood cells 6,700, differential count normal. The Kahn and Wassermann tests were negative.

The patient received a transfusion of 260 cc. of whole blood. An exploratory laparotomy was refused. On this admission there is no notation of cardiac abnormality, nor was an electro-

pallor and the dermatitis already noted. The pulse was of poor volume and the blood pressure 84 systolic, 70 diastolic. The heart showed a marked increase in the transverse diameter. The sounds were weak and distant. The rhythm was regular. No murmurs were heard. There was tenderness over the whole abdomen, with some ascites and hydrothorax. The blood count revealed hemoglobin 30 per cent, red blood cells 2,200,000, white blood cells 2,350, differential normal. Examination of the urine and feces was negative. Gastric analysis showed absence of free hydrochloric acid.

Blood sugar was 90 mg. and nonprotein nitrogen 30 mg. per hundred cubic centimeters. A tentative diagnosis of pellagra and severe hypochromic anemia was made because of this and uterine hemorrhages. She was placed on a high vitamin diet, supplemented by brewers' yeast and viosterol. Iron and ammonium citrate 1 Gm. three times a day and intramuscular injections of liver extract and digitalis were also given. Roentgen treatment was administered over



Fig. 4.—Teleoroentgenographic study, May 17, 1935. Transverse diameter of heart 12 cm.; of chest 26 cm.

both ovaries and to the right hand, the left hand being used as a control. A blood transfusion of 250 cc. by the direct method was given on May 28, the blood count having remained essentially the same up to this time. No improvement followed the transfusion. June 17 an electrocardiogram showed low voltage complexes with flattened P and T waves and left axis deviation (fig. 1). The appearance of the electrocardiogram and the large size of the heart suggested myxedema. The basal metabolic rate was found to be —38 per cent. She was placed on thyroid, 130 mg. daily. Improvement in her condition was rapid. July 4 the hemoglobin was 55 per cent, red blood cells 2,930,000, white blood cells 12,200, with normal differential count. By July 10 the hemoglobin had increased to 65 per cent. The patient was discharged to the care of the outpatient service, July 13. The dermatitis had entirely cleared, no difference having been noticed in the rate of recovery in the two hands; the ascites and hydrothorax were gone, and there was a marked improvement in strength and mental outlook. August 4 the basal metabolic rate was —8 per cent. On this date a 2 meter film showed a total transverse diameter of the heart of 18.5 cm. with a transverse diameter of the chest of 26 cm. (fig. 2).

5. Willius, F. A.: Personal communication to the author.

6. Lerman, J.; Clark, R. J., and Means, J. H.: The Heart in Myxedema: Electrocardiograms and Roentgen-Ray Measurements Before and After Therapy. *Ann. Int. Med.* 6:1251-1271 (April) 1933; Further Observations on the Heart in Myxedema, *ibid.* 8:82-84 (July) 1934.

7. Ohler, W. R., and Abramson, Julius: The Heart in Myxedema. *Arch. Int. Med.* 53:165-187 (Feb.) 1934.

The patient left the city and was not heard from until her readmission to the surgical service March 24, 1935, at which time she gave a history of having discontinued treatment and of a sudden onset of profuse menorrhagia on March 8, which had continued up to the time of readmission. Her condition was critical. She was profoundly prostrated and partially disoriented. The uterine flow was free and serous, with very little color. Her pulse was 112; blood pressure 78 systolic, 40 diastolic. The heart sounds were distant. There was tenderness over the uterus, which was moderately enlarged and firm. The cervix was enlarged and a little softer than normal. Blood count was hemoglobin 25 per cent, red blood cells 1,070,000, white blood cells 14,800. She received transfusions of 300 cc. of whole blood by the direct method on the 25th and 30th. Following these the hemoglobin increased to 40 per cent and the red cells to 2,420,000. There was a marked increase in the transverse diameter of the heart, the apex being visible in the fifth interspace in the anterior axillary line (12 cm. from the midline); the sounds were of fair quality; no murmurs were heard. The lungs, abdomen and extremities were normal. She was again placed on liver extract intramuscularly, iron and ammonium citrate, and thyroid 130 mg. twice a day. April 5 an electrocardiogram showed rate 82, rhythm regular, auriculoventricular conduction time 0.16 second, and all complexes of low voltage but of greater amplitude than in the one of June 17, 1934. There was also a left axis deviation (fig. 3). April 8 the basal metabolic rate was -21 per cent; May 1 it

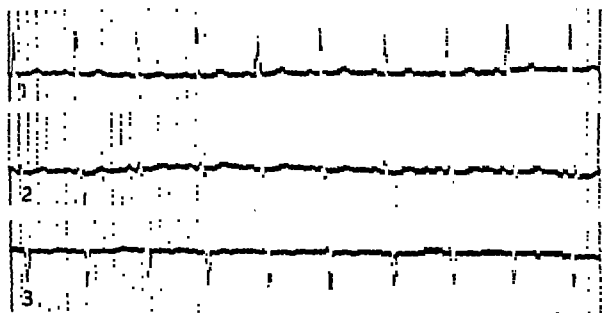


Fig. 5.—Electrocardiogram of May 17, 1935, after administration of thyroid. Basal metabolic rate -3 per cent.

was plus 9 per cent. On that date the hemoglobin was 75 per cent, red blood cells 3,980,000, and white blood cells 10,200; the blood pressure was 120 systolic, 84 diastolic. Supravaginal hysterectomy was performed under spinal anesthesia May 2. Sections showed an endometrioma of the left cornu. Surgical recovery was uneventful. A 2 meter film May 17 disclosed that the transverse diameter of the heart had decreased from 18.5 cm. to 12 cm. (fig. 4). An electrocardiogram showed increase in voltage with marked left axis deviation (fig. 5). The basal metabolic rate the same date was -3 per cent. She was discharged May 18. She was last seen July 2, 1936, at which time her condition was excellent. The transverse diameter of the heart was 12 cm., the sounds were clear, and there were no murmurs. The blood pressure was 120 systolic, 84 diastolic. She had been taking thyroid 32 mg. daily but no other treatment.

COMMENT

This case presents the cardinal features of the so-called myxedema heart, characterized by a marked increase in diameter, feeble pulsation, and electrocardiographic complexes of low voltage with flattened P and T waves. Marked decrease in size of the heart, improvement in function and change in the electrocardiogram followed treatment with thyroid. Whether hysterectomy was justified in view of the frequent occurrence of uterine hemorrhage in such cases is questionable. It was done in view of the critical condition of the patient and her failure to continue the thyroid treatment following her second discharge from the hospital. In this case it would appear that the source of the hemorrhage was the endometrioma. Whether the hypothyroidism was a factor is unknown, as is also the relationship of the pellagra-like lesions and symptoms.

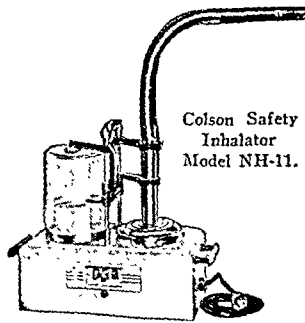
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

COLSON SAFETY INHALATOR, MODEL NH-11, ACCEPTABLE

Manufacturer: The Colson Corporation, Elyria, Ohio.

This device is recommended as an adjunct in the treatment of nasal or respiratory disturbances and for inhalations of vapor or medicated vapor as prescribed by the physician. The heating element, internal connections, and so on, are enclosed in the cabinet, size 20½ inches long and 8¼ inches wide over the handles. The height with the tube removed is 18½ inches. The power required is 500 watts and 115 volts. The flexible tube is 32 inches long and terminates with a nozzle 9 inches in length. It weighs 12 pounds empty. The steel cabinet is finished in ivory baked-on enamel. The interior parts in contact with the water or medicine are seamless copper, nickel plated.



The firm claims that this unit is an improvement over the former inhalator accepted by the Council and described in *THE JOURNAL*, May 26, 1934, page 1760.

If the water supply should become exhausted through an oversight, an automatic thermal switch cuts off the electric current, the red signal light glows and the reset switch is released. The inhalator cannot be put back in operation until it has been cooled to normal temperature by replenishment of the water supply. When the unit is set on "high heat" the water supply will last for approximately eight hours. If on low heat, the water supply continues for approximately sixteen hours. It is so arranged that a medicament cup may be placed directly over the rising steam, thus affording an opportunity for the volatilized medicine to mix with the steam.

The inhalator was investigated in a clinic acceptable to the Council. Its performance and operation were regarded as satisfactory.

In view of the favorable report, the Council on Physical Therapy voted to include the Colson-Safety Inhalator, Model NH-11, in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

NEO-IOPAX (See New and Nonofficial Remedies, 1936, p. 256).

The following dosage form has been accepted:

Ampoule Solution Neo-Iopax, 10 cc.: Each ampule contains neo-iopax, 7.5 Gm., dissolved in sufficient sterile distilled water to make 10 cc.

DEXTROSE (See New and Nonofficial Remedies, 1936, p. 289).

The following dosage forms have been accepted:

The Lakeside Laboratories, Inc., Milwaukee.

Ampoules Dextrose (d-Glucose) 5 Gm., 10 cc.: Each ampule contains dextrose (d-glucose) 5 Gm., in distilled water to make 10 cc.

Sterile Solution Dextrose (d-Glucose) in Rubber Stopped Vials 25 Gm., 50 cc.: Each ampule contains dextrose (d-glucose) 25 Gm., in distilled water to make 50 cc.

Sterile Solution Dextrose (d-Glucose) in Rubber Stopped Vials, 50 Gm., 100 cc.: Each ampule contains dextrose (d-glucose) 50 Gm., in distilled water to make 100 cc.

TETANUS TOXOID, ALUM PRECIPITATED (See THE JOURNAL, May 16, 1936, p. 1735; Revised Supplement to New and Nonofficial Remedies, 1936, p. 16).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Tetanus Toxoid, Alum Precipitated, Refined.—Marketed in packages of two 1 cc. vials (one immunization treatment); and in packages of one 10 cc. vial (five immunization treatments).

ANTIPNEUMOCOCCIC SERUM, TYPE II (See New and Nonofficial Remedies, 1936, p. 374).

The National Drug Co., Philadelphia.

Antipneumococcic Serum (Felton) Type II, Refined and Concentrated.—Prepared by immunizing horses with intravenous injections of virulent and avirulent pneumococci, and subcutaneous injections of the supernatant broth culture mediums in which the pneumococci had been grown. When test bleedings show the serum to have reached a sufficient degree of potency, the horses are bled aseptically and the serum is refined and concentrated by a method similar to that used for antitoxins. The potency of the product is determined and expressed in terms of the unit of Lloyd D. Felton. Marketed in packages containing 10,000 and 20,000 units of type II pneumococcus antibodies.

PHENOLSULFONPHTHALEIN (See New and Nonofficial Remedies, 1936, p. 194).

Phenolsulfonphthalein—"National."—A brand of phenolsulfonphthalein—U. S. P.

Manufactured by the National Aniline and Chemical Co., Inc., New York. No U. S. patent or trademark.

LIVER EXTRACT (INTRAMUSCULAR)-PARKE, DAVIS & CO. (See New and Nonofficial Remedies, 1936, p. 281).

The following dosage form has been accepted:

Solution Liver Extract (Intramuscular)—P. D. & Co., 10 cc. vials.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

FRANKLIN C. BING, Secretary.

THE NUTRITIONAL SIGNIFICANCE OF THE CURD TENSION OF MILK

I. The Production and Properties of "Soft Curd" Milks

Although milk ordinarily is considered a fluid, it clots soon after it reaches the stomach and should be thought of as a "solid food." The size and degree of toughness of the clots are considered by many authorities to be important factors in the gastric digestion of milk. The character of the milk curd has claimed the attention of pediatricians for many years. Human milk forms a soft, almost fluid, coagulum in the stomach, whereas untreated cow's milk tends to form compact, cheesy masses. Some of the curds formed from raw cow's milk, observed by Brennemann¹ in a subject who could voluntarily regurgitate, measured 4 or 5 inches in length; others were apparently too large to pass the throat and could be recovered only after the digestive processes had reduced their size. If the milk was first boiled, the curds formed were smaller and more friable and appeared to be more quickly digested. Since the time of Brennemann's pioneer experiments, laboratory methods have been devised for the quantitative determination of curd tension. Considerable information has been gathered on the effect of different processes on the nature of the curd. The purpose of the present report is to summarize the available information on the production and properties of milk of "low curd tension."

NATURAL SOFT CURD MILK

Most observations on soft curd milk have been made possible by the development of methods for the determination of curd tension. Hill's method² has been improved by Cole³ and by

Miller.⁴ Stated briefly, the method consists of coagulating the milk in a jar by a solution of pepsin and, usually, calcium chloride, and the force required to pull or push a horizontal knife blade through the curd is read on a spring balance. The curd tension thus is measured in terms of grams of force under standard conditions. Hill defines soft curd milk as milk having a curd tension of 20 Gm. or less, while some other investigators allow an upper limit of 33 Gm. Differences in coagulant and in size and design of knife produce noncomparable results.⁵ Such variations in definition and methods of determination may account for some of the conflicting reports of the properties of soft curd milk.

The curd tension of untreated cow's milk may be found as high as 200 Gm. Certain cows, however, produce milk that has a much lower curd tension. This milk is sometimes referred to as "natural" soft curd milk. The production of soft curd milk appears to be an individual peculiarity of certain cows, which has been observed to persist from one lactation period to the next.⁶ While extremes of curd tension have been observed in the milk of all breeds of cattle studied, the proportion of cows giving soft curd milk is higher in some breeds than in others.⁶ The following breeds are listed in the order of their decreasing importance as producers of soft curd milk: Holstein, Ayrshire, Guernsey and Jersey.⁷ Although curd tension is fairly constant from day to day, it is high at the beginning of the lactation period and usually higher or occasionally lower at the end of the period.⁸ Several investigators have observed higher curd tensions during the winter months, particularly in the very cold weather, than in the spring and summer.⁹ It is interesting to note that some types of subclinical mastitis in cows have been found to be associated with the production of abnormal milk of low curd tension.¹⁰

Natural soft curd milk has been found by several investigators to be low in total solids,⁶ solids-not-fat,¹¹ fat,¹² and protein,¹¹ especially casein.¹³ The difference in casein concentration of soft and hard curd milk has been said to account for the greater part of the variation in curd tension.¹⁴ The caseins of hard and soft curd milks have not been found to differ in iso-electric point or amino acid makeup.¹⁵ In soft curd milk, calcium and phosphorus are present in normal ratio but smaller amounts;³ total ash has been reported normal¹⁶ and low.⁵ Natural soft curd milk in general is less concentrated milk; its lower caloric value has been confirmed by clinical experience.¹⁷ Buffer capacity, which depends largely on casein and phosphate, and titratable acidity, are low in soft curd milk.¹¹ Curd tension does not appear to be related to any of the following characteristics: lactose concentration,¹⁵ pH ,¹⁸ rate of rennin coagulation,^{6b} bacterial flora,^{6b} freezing point¹² or surface tension.⁵ According to several investigators the casein content is the sole or principal difference between naturally hard and soft

4. Miller, Donald: The Determination of Curd Tension by the Use of Hydrochloric Acid-Pepsin Coagulant, J. Dairy Sci. 18:259 (April) 1935.

5. Doan, F. J., and Welch, R. C.: Soft-Curd Milk, Tech. Bull. 312, Pennsylvania Agr. Exper. Sta., 1934.

6. Buckley, S. S.: The Physical Character of the Curd of Milk from Different Breeds as an Index of the Food Value of Milk: Studies of the Proteid Content of Milk, Bull. 184, Maryland Agr. Exper. Sta., 1914, cited by Doan and Welch.⁵ Hill, R. L.: The Physical Curd Character of Milk and Its Relationship to the Digestibility and Food Value of Milk for Infants, Bull. 207, Utah Agr. Exper. Sta., 1928.

7. Riddell, W. H.; Caulfield, W. J., and Whitnah, C. H.: Normal Variations in the Curd Tension of Milk, J. Dairy Sci. 19:157 (March) 1936.

8. (a) Berry, M. H.: Soft Curd Studies, Milk Plant Monthly 22:30 (July) 1935. (b) Morris, Myrl, and Richardson, G. A.: The Production and Use of Soft Curd Milk, J. Pediat. 2:449 (Sept.) 1931.

9. Doan and Welch.⁵ Hill.⁶ Riddell, Caulfield and Whitnah.⁷

10. Hansen, H. C.; Theophilus, D. R.; Atkeson, F. W., and Gildow, E. M.: Influence of Mastitis on Curd Tension of Milk, J. Dairy Sci. 17:257 (March) 1934, through Exper. Sta. Rec. 71:692 (Nov.) 1934.

11. Doan and Welch.⁵ Morris and Richardson.⁸

12. Weisberg, S. M.; Johnson, A. H., and McCollum, E. V.: Laboratory Studies on the Chemistry of Soft Curd Milk, J. Dairy Sci. 16:225 (May) 1933. Doan and Welch.⁵

13. Espe, D. L., and Dye, J. A.: Effect of Curd Tension on the Digestibility of Milk, Am. J. Dis. Child. 43:62 (Jan.) 1932. Doan and Welch.⁵ Riddell, Caulfield and Whitnah.⁷ Morris and Richardson.⁸

14. Weisberg, Johnson and McCollum.¹²

15. Espe and Dye.¹³

16. Hansen, Theophilus, Atkeson and Gildow.¹⁰

17. Elias, H. L.: Soft Curd Milk, Am. J. Dis. Child. 44:296 (Aug.) 1932.

18. Doan and Welch.⁵ Morris and Richardson.⁸ Weisberg, Johnson and McCollum.¹²

1. Brennemann, Joseph: Boiled versus Raw Milk, J. A. M. A. 60:575 (Feb. 22) 1913.

2. Hill, R. L.: A Decade and a Half of Soft-Curd Milk Studies, Circ. 101, Utah Agr. Exper. Sta., 1933.

3. Cole, A. P.: New Apparatus for Determining Curd Character of Milk, Milk Plant Monthly 24:24 (Jan.) 1935.

curd milks.¹⁹ Determinations of conductivity and viscosity carried out by Weisberg, Johnson and McCollum¹² indicate, however, that "the suspensoid phase differentiates a soft curd milk from a hard curd milk," that the fat, casein and calcium phosphate, by their concentration and manner of dispersion, control the curd character. This relationship may be explained in terms of coagulating centers, the number of which is affected by concentration of casein and interruption of micelles by fat globules. Another explanation is the adsorption of casein at the surface of the fat globules. The effectiveness of certain processes which reduce curd tension lends some support to the view of Weisberg, Johnson and McCollum of the factors that control curd tension in untreated milk.

MODIFICATION OF CURD BY VARIOUS TREATMENTS

Common methods of treating milk for infant feeding, such as dilution, heat treatment, homogenization, addition of acids or alkalis, removal of calcium, and the addition of cereal waters, all have in common the effect of reducing the curd tension of milk. Whether or not the product will have a curd tension of 30 Gm. or less depends on the initial curd tension and the kind and degree of treatment.

Dilution.—Dilution with water or whey has been found to lower curd tension to a degree not strictly proportional to the reduction of casein content.²⁰

Heat.—The result of heat treatment depends on the temperature and duration of heating. Pasteurization ordinarily has a negligible effect.²¹ While heating to 160 F. causes little change, a temperature of 180 F. reduces the curd tension according to the time of heating.²² Boiling for five minutes causes marked attenuation of the curd.²³ The heat treatment involved in the production of evaporated, sweetened condensed and powdered milks probably assures a soft curd in these products, though variations in curd texture have been noted.²⁴ The effect of heat on curd tension is thought to be due to partial denaturation of the proteins.²⁵

Homogenization.—Homogenization can be produced by forcing milk through minute openings under high pressure. The fat is finely divided by this process, remains suspended uniformly throughout the milk and does not form a cream layer. The softness of the curd of homogenized milk bears out the view of Weisberg, Johnson and McCollum¹² that the state of dispersion of the fat and casein is an important factor in determining curd character. About 2 per cent of the casein normally is adsorbed on the surface of the fat globules, but after homogenization 25 per cent is so held,²⁶ owing to the greater surface offered by the smaller fat globules. In line with Weisberg's view, it has been found that skim milk shows no change in curd tension when passed through a homogenizer,⁵ presumably because its fat content is too low to afford significant increase in surface. Evidence of theoretical interest is the effect of intense sonic vibrations in reducing curd tension.²⁷ Sound waves passing through milk, from one electrical plate to another, cause a dispersion of fat and increased surface for casein adsorption similar to that effected by homogenization.

The conditions of homogenization that determine the degree to which curd tension is lowered are initial curd tension, and temperature and pressure of processing. The higher the initial curd tension, the greater is its reduction by homogenization.²⁸ A processing temperature of 165 F. has been found to be more

effective in lowering the tension of the curd than 120 or 145 F.,²⁹ but probably the most effective method involves preheating to 180 F. followed by cooling to 100 F. and homogenization at the latter temperature.⁵ Increased pressure of homogenization up to 2,000 or 3,000 pounds per square inch increases the effect on curd tension,²⁸ but there is said to be little practical value in the use of pressures above 2,500 pounds per square inch.²⁹ A second processing does not further affect the character of the curd, which is fixed permanently by one treatment.²⁹

The study of the effect of these physical methods of treating milk demonstrates the importance of the conditions of treatment. The fact that milk has been heated or homogenized is no assurance that it falls within the soft curd range unless the initial curd tension and conditions of processing are known to be suitable. Thus, while evaporated, condensed and powdered milks usually have soft curds, "homogenized" or "heated" milks may show a higher curd tension.

Other Methods.—Modification by chemical means such as the addition of acids or alkalis and the removal of soluble calcium has been more or less widely used. The addition of either acids or alkalis reduces curd tension. The removal of calcium ions may be effected by the addition of citrate as part of the feeding formula, or by commercial treatment of acidified milk with one of the zeolites which gives up sodium or potassium in exchange for calcium. The zeolite or base-exchange method removes some of the phosphorus and about 20 per cent of the total calcium of the milk and is supposed to prevent coagulation in the stomach.³⁰ Such milk would not form a clot with rennin. However, evidence for the curd character of milk treated by base exchange is too slight to justify definite conclusions. Claims for the unimpaired nutritive value of this product despite its lower calcium content are based on a study of the calcium balance of one infant.³¹ Cereal waters, by virtue of their starch content, inhibit the formation of large curds,³² perhaps because the colloidal film formed on the surface of the curds prevents the coalescence of small curds into large ones.³³ Gelatin, however, appears to have little effect on curd texture but the evidence is somewhat conflicting.³⁴ Sugars have been found not to affect the curd.³² Milk coagulated with rennin and shaken to form a smooth, slightly thickened liquid has been observed to form soft curds in the stomach.³²

SUMMARY

Interest in the character of the curds formed by milk in the stomach has led to the development of laboratory methods for the quantitative measurement of curd tension. There is unfortunately no precise and generally accepted definition of what standards a milk must attain before it merits the designation of "soft curd." Large individual differences in curd tension may be observed in untreated milk from different cows. Natural soft curd milk appears to be a less concentrated milk, having a relatively low content of fat, casein and calcium phosphate. Pasteurization of milk has little effect on the nature of the curd, but softening of the curd may be accomplished by a great variety of methods. These include simple modifications used in the preparation of many infant feeding mixtures, for example, boiling (and it is the opinion of the Council that all cow's milk used for the preparation of infant feeding mixtures should be boiled), dilution, addition of acids or alkalis and the addition of various cereal waters. Removal of ionizable calcium is said to effect the softening of the curd. Homogenization of whole milk usually lowers the curd tension. Commercial methods of preserving milk involving evaporation or drying likewise usually yield a product that exhibits a low curd tension.

19. Hill.² Doan and Welch.⁵ Riddell, Caulfield and Whitnah.⁷ Espe and Dye.¹²

20. Doan and Welch.⁵ Espe and Dye.¹²

21. Brennemann.¹ Doan and Welch.⁵ Hill.⁶

22. Doan and Welch.⁵ Berry.⁸

23. Brennemann.¹ Doan and Welch.⁵

24. Courtney, Angella M.: Some Differences in the Behaviour of Raw, Pasteurized, Boiled, Evaporated and Dried Milk at the Hydrogen Ion Concentration of the Stomach, *Canad. M. A. J.* 17: 919 (Aug.) 1927.

25. Palmer, L. S.: The Effect of Heat on the Calcium Salts and Rennet Coagulation of Cow's Milk, *Proc. Soc. Exper. Biol. & Med.* 19: 137 (Dec.) 1921.

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27. Chambers, L. A.: Soft Curd Character Induced in Milk by Intense Sonic Vibration, *J. Dairy Sci.* 19: 29 (Jan.) 1936.

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32. Brennemann, Joseph: The Coagulation of Cow's Milk in the Human Stomach, *Arch. Pediat.* 34: 81 (Feb.) 1917.

33. Brennemann, Joseph: The Artificial Feeding of Infants, in *Pediatrics*, I. A. Abt, editor, Philadelphia, W. B. Saunders Company, 1923, vol. 2.

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SATURDAY, JUNE 12, 1937

CHOLESTEROSIS OF THE GALLBLADDER

Virchow in 1857 described a peculiar stippled appearance of the mucosa of some gallbladders removed during necropsies. He regarded the yellow flecks and strands as fatty infiltration and suggested that the material is a neutral fat excreted by the liver and reabsorbed from the bile by the epithelial cells of the gallbladder mucosa. The condition received scanty attention from surgeons and pathologists, despite its not infrequent occurrence and a striking gross appearance.

Aschoff¹ demonstrated in 1906 the occurrence of cholesterol in the epithelial cells of the mucous membrane of the gallbladder. Moynihan² in 1909 presented an excellent description of the naked eye appearance of cholesterosis, calling attention to the yellow stippling of the mucosa. He regarded the discoloration as the result of an inflammatory process in which the epithelium was desquamated and the underlying tissue became bile stained. In six of his cases of this type, relief from symptoms followed the removal of the gallbladder; he pronounced the condition therefore a pathologic one requiring cholecystectomy. MacCarty in 1910 coined the descriptive name "strawberry gallbladder," which received universal adoption.

The term "cholesterosis of the gallbladder," suggested by Mentzer, more nearly describes the essential pathologic and clinical features of the condition. Boyd³ in 1923 found that the cholesterol content of the normal gallbladder wall was from 0.5 to 1.7 per cent of the dry weight, that of an inflamed gallbladder not the seat of cholesterosis 0.36 per cent, and that of a strawberry gallbladder from 34.6 to 60.5 per cent. He demonstrated that the fatty infiltrating material consisted of cholesterol esters. Policard and Illingworth likewise determined with the aid of the polarizing microscope, microchemical reactions and differential stains that the deposits of material in the epithelial layer of the gallbladder mucosa in cases of cholesterosis consisted

mainly of the esters of cholesterol. The subsequent investigations of Mentzer and others demonstrated that some degree of lipoid infiltration was a rather common condition in all gallbladders. Illingworth and Boyd have determined that typical cholesterosis of the gallbladder is accompanied in the majority of the cases by mild inflammatory changes. Most of the strawberry gallbladders removed at operation exhibited signs of inflammation, but this is not necessarily an argument in favor of an inflammatory genesis for the condition. Cases requiring surgical relief would naturally be those complicated by inflammatory phenomena. The discovery at operation or necropsy, however, of even a few cases of cholesterosis without a trace of inflammation might constitute a more weighty argument in favor of its essential noninflammatory character. The fact that about half of the cases of cholesterosis are associated with gallstones and that these are invariably of the cholesterol-rich type suggests the important part played by cholesterol in the formation of gallstones.

Bristowe⁴ in a paper published in 1887 recorded a case "in which there was a contracted gallbladder with extremely thick walls. Imbedded in these walls were a considerable number of cavities varying between the size of a pea and that of a bean, which were evidently mucous crypts. And within each one there were large crystals of pure cholesterine." He expressed the belief that "the bulk of cholesterine in gallbladder stones is derived not from the bile, but from the secretions discharged from the mucous surface." Naunyn⁵ emphasized the predominant rôle of cholesterol in the formation of gallstones. Cholesterol, normal constituent of the gallbladder bile of man and many mammals, is held in solution by the bile salts and the fatty acids. Cholesterol contained in the epithelial cells of the mucous membrane of the gallbladder is released through the physiologic process of shedding and breaking down normally taking place in the gallbladder. This process is greatly accelerated in inflammatory states of the mucosa. Thus, inflammation becomes the important factor in the genesis of the stones.

Naunyn⁶ in 1921 described cases in which the gallbladder mucosa was streaked with incrustated cholesterol flecks, while small cholesterol stones, the larger of which presented crystalline formation, were to be seen on the surface. Naunyn expressed his conviction that these structures developing in the mucosa derived their cholesterol from the latter and not from the bile. Lichtwitz suggested that the multiple mulberry stones commonly associated with cholesterosis had their origin in detached cholesterol polyps.

Opposed to the infectious theory of Naunyn are the views of Aschoff and Bacmeister.⁷ These investigators

1. Aschoff, Ludwig: Zur Frage der Cholesterinbildung in der Gallenblase, München. med. Wchnschr. 3: 1847, 1906.

2. Moynihan, B. G. A.: A Disease of the Gallbladder Requiring Cholecystectomy, Ann. Surg. 50: 1265, 1909.

3. Boyd, William: Studies in Gallbladder Pathology, Brit. J. Surg. 10: 337 (Jan.) 1923.

4. Bristowe, J. S.: Cases of Gallstones, with Remarks, Lancet 1: 251 (Feb. 19) 1887.

5. Naunyn, Bernhard: Die Klinik Der Cholelithiasis, Leipzig, F. C. W. Vogel, 1892.

6. Naunyn, Bernhard: Die Gallensteine, ihre Entstehung und ihr Bau, Jena, 1921.

7. Aschoff, Ludwig, and Bacmeister, Adolf: Die Cholelithiasis, Jena, 1909.

maintain that cholesterol is absorbed from the gallbladder bile by the epithelial cells of the gallbladder mucosa and not secreted by them, that the process is essentially aseptic and that it is brought about by concentration of the gallbladder bile as a result of stasis and alterations in cholesterol metabolism. Bile stasis leads to absorption by the epithelial cells of the neutral fats of the bile, which normally hold the cholesterol in solution. As a result the cholesterol is precipitated out and leads to the formation of stones. Aschoff's demonstration of the purely metabolic aseptic nature of the formation of the solitary cholesterol stone has been generally accepted. Aschoff demonstrated in animal experiments that lipoids are being absorbed by the gallbladder wall. He introduced olive oil, butter and sterile milk into the gallbladder of dogs, the cystic duct being ligated, and was able to demonstrate the presence of lipid deposits in the gallbladder wall in all the animals. Illingworth⁸ demonstrated that cholesterol, when in excess, and in certain physical mixtures, can be absorbed by the gallbladder wall. He suggests that visible deposit of cholesterol in the gallbladder implies two processes: (1) absorption of cholesterol into the mucosa, depending probably on an increase in the cholesterol content of the bile, and (2) some change which unmasks this absorption of invisible cholesterol and prevents or delays its transport and leads to its accumulation on the mucous membrane. The part played by the inflammation consists, perhaps, of interfering with the absorptive processes, thus leading to accumulation of cholesterol in the gallbladder wall. Evidence of the opposite character is adduced by the experimental investigations of Elman and Graham.⁹ They state that, when the gallbladder was isolated by ligation of the cystic duct, the bile therein, after a sojourn of from two to sixteen days, contained a larger amount of cholesterol in all but one of nine experiments. Their conclusions are that the gallbladder does not absorb cholesterol, that it secretes cholesterol and that inflammation may accelerate the process.

Andrews, Dostal and Hrdina¹⁰ have urged that Elman and Graham's experiments are not convincing because of sources of error in their work. They call attention to the fact that the blood plasma of a dog contains much more cholesterol than the hepatic or cystic bile. Any exudation therefore of serum or introduction of a drop of blood from the needle puncture to obtain samples of bile would be sufficient, in their opinion, to vitiate the accuracy of these experiments.

Mackey,¹¹ in a recent histologic study of eighty-seven cases of cholesterosis, points out that the degree of cholesterosis was never proportional to the degree of the

inflammatory change and was rare if the latter was severe. He suggests that the etiology of cholesterosis is other than inflammation, since in not a few of his cases inflammation was entirely absent. The essentially aseptic nature of the solitary cholesterol calculus is, in his opinion, another argument against an inflammatory basis for cholesterosis. He concludes that cholesterosis and stones are not respectively cause and effect but are parallel results of supersaturation of the bile with cholesterol.

The preponderance of experimental proof seems to indicate that the gallbladder absorbs cholesterol from the bile and that cholesterosis is probably an infiltrative process. Infection, though frequently associated with cholesterosis, is not an essential factor and may be entirely absent. The relation of diet, of cholesterol metabolism, of cholesterolemia and of inflammation to cholesterosis and stone formation awaits further study.

PROTHROMBIN DEFICIENCY IN JAUNDICED PATIENTS

Few problems have so seriously concerned students of hepatic physiology as those concerned with the disturbed mechanisms of coagulation associated with jaundice or hepatic injury. Studies on the subject have been handicapped by preconceived ideas in regard to the effect of the constituents of regurgitated bile on the blood itself, but it is now apparent that the bile pigments, the bile salts or the cholesterol present in jaundiced blood have no particular effect on coagulation of blood and that some disturbance in hepatic function is the determining factor. Disturbances in coagulation of blood therefore must depend on a deficiency of some substance normally supplied by or stored in the liver or on some hypothetical anticoagulant derived from degenerating hepatic cells. The first hypothesis recently has been supported by new and valuable evidence.

The theory of blood coagulation now in general favor is that of Wöhlisch. According to this, a clot forms from the interaction of fibrinogen and thrombin, the latter substance in turn resulting from the combined action of prothrombin, thromboplastin, and calcium. Nygaard's¹ studies on coagulability of plasma of jaundiced patients seem to assign the cause of delayed coagulation in obstructive jaundice to a deficiency of prothrombin. Quick, Stanley-Brown and Bancroft² recently have determined prothrombin by a new method, employing an excess of thromboplastin and an optimal amount of calcium, leaving prothrombin as the only variable. These investigators find that the clotting time of recalcified plasma of jaundiced patients is greatly prolonged even after an excess of thromboplastin has been added; this indicates that the abnormality lies in a diminished

8. Illingworth, C. F. W.: Cholesterosis of the Gallbladder, *Brit. J. Surg.* 17: 203 (Oct.) 1921.

9. Elman, Robert, and Graham, E. A.: The Pathogenesis of the Strawberry Gallbladder, *Arch. Surg.* 24: 14 (Jan.) 1932.

10. Andrews, Edmund; Dostal, L. E., and Hrdina, L.: Etiology of Gallstones: Is Cholesterol Secreted by the Gallbladder Mucosa? *Arch. Surg.* 26: 382 (March) 1933.

11. Mackey, W. A.: Cholesterosis of the Gallbladder: A Review Supplemented by Personal Observations on 87 Cases, *The Brit. J. Surg.* 24: 95 (Jan.) 1937.

1. Nygaard, K. K.: Coagulability of Blood Plasma: A Method of Determining Hemorrhagic Tendency of Jaundiced Patients, *Proc. Staff Meet., Mayo Clin.* 7: 691 (Nov. 30) 1932.

2. Quick, A. J.; Stanley-Brown, Margaret, and Bancroft, F. W.: A Study of the Coagulation Defect in Hemophilia and in Jaundice, *Am. J. M. Sc.* 190: 501 (Oct.) 1935.

quantity of prothrombin. The authors present additional arguments to support their views by showing that no other substance necessary for coagulation is deficient in jaundiced blood. Fibrinogen and serum calcium may be decreased in some instances, but fatal hemorrhage may occur even with normal levels of either substance. Thromboplastin, a cephaloprotein compound, is not lacking, as the studies of Quick, Stanley-Brown and Bancroft show, and certainly the thrombocytes from which it is derived are ordinarily present in normal numbers in jaundiced blood.

The correctness of the idea that deficiency of prothrombin is a cause of bleeding in hepatic disease is strongly supported by the recent observations of Hawkins and Brinkhous,³ who have shown that the hemorrhagic tendency in the presence of bile fistula of dogs is attributable to a low level of prothrombin in the plasma, a condition which may be corrected by feeding bile. They point out that normal blood contains a large excess of prothrombin, while only a small amount is necessary to normal clot formation, which may explain the temporary beneficial effect of blood transfusion.

There are other recent studies on prothrombin deficiency which have a direct bearing. In animals fed sweet clover hay which has been improperly cured, a hemorrhagic condition attributable to prothrombin deficiency results;⁴ a similar and probably a related condition can be produced in chicks by a diet deficient in the fat soluble vitamin K, and here again the prothrombin content of blood is reduced.⁵ Both conditions are prevented or relieved by feeding alfalfa hay or other substances rich in vitamin K. The similarity of the two conditions suggests that this vitamin and prothrombin may be related in some way, and Dam and his co-workers⁶ have strengthened this impression by demonstrating that prothrombin can be prepared from the plasma of normal chicks, while corresponding preparations from chicks lacking vitamin K are inactive.

As these investigators show, preparations of prothrombin contain vitamin K, a fact which is at variance with the observation that the vitamin does not act as prothrombin in vitro. No matter what the actual interpretations may be, it is apparent that both a toxic factor and a form of avitaminosis may have a similar effect on the prothrombin level of blood, and as Quick⁵ has noted, the latter condition may obtain in obstructive jaundice. The curative effects of feeding alfalfa may depend on the presence of vitamin K or on some accessory substance necessary for formation of prothrombin. An adaptation of these studies to an investigation of the hemorrhagic state in jaundice may conceivably lead to new light on an old and baffling problem.

ALLERGIC TISSUE CULTURES

The application of tissue culture methods has led to but few conclusions of greater clinical interest than the recent demonstration of the altered growth vigor of fixed tissue cells as a result of somatic sensitization to certain bacterial products. The first studies of the in vitro effects of specific bacterial antigens on tissue cultures were made about ten years ago by Rich and Lewis¹ of Johns Hopkins University. These investigators found that the addition of human type tuberculins to explants from the spleen of tuberculous guinea-pigs inhibited the growth and caused degeneration in these explants. The same tuberculins had no demonstrable toxic effects on explants from nontuberculous guinea-pigs.

This observation was adequately confirmed about four years later by Aronson² of the Phipps Institute at the University of Pennsylvania, who studied the allergic toxicity of tuberculins of avian, bovine and human type on explants from bone marrow, spleen and testes of both guinea-pigs and fowls. All these tuberculins were found to be toxic for explants from animals with homologous tuberculous infections. All were nontoxic on control explants from normal animals. Aronson was surprised to find that "tuberculin" from the so-called leprosy bacillus was toxic also for splenic explants from tuberculous fowls. Other acid-fast bacilli invariably yielded nontoxic "tuberculins."

The cellular nature of this tuberculous allergy, however, was not established by these earlier tests, since the explants were presumably saturated with humoral antibodies. Moen and Swift³ of the Rockefeller Institute, therefore, not only tested first generation explants from normal and tuberculous animals but made similar tests on second, third and later generation transplants from these tissue cultures. They report that tuberculin-sensitive tissues grown in normal culture mediums showed sensitivity to tuberculin through several transplantations, during which time many new generations of cells had developed. Of even greater clinical significance was their collateral observation that "the degree of cellular sensitivity to tuberculin does not parallel the acuity of the infective process . . . but represents a more or less permanent acquired characteristic impressed on the cell as a result of the infection."

Moen⁴ has recently extended his tissue culture studies to other bacterial antigens. He found that tissues isolated from guinea-pigs infected with group C hemolytic streptococci, for example, showed an acquired hypersusceptibility to extracts from hemolytic streptococci. This hypersusceptibility was shown by cellular degenerations and by inhibition of normal cellular growth and migration. Here also he found no correla-

3. Hawkins, W. B., and Brinkhous, K. M.: Prothrombin Deficiency the Cause of Bleeding in Bile Fistula Dogs. *J. Exper. Med.* 63:795 (June) 1936.

4. Roderick, L. M.: A Problem in the Coagulation of the Blood: "Sweet Clover Disease of Cattle," *Am. J. Physiol.* 96:413 (Feb.) 1931.

5. Quick, A. J.: The Coagulation Defect in Sweet Clover Disease and in the Hemorrhagic Chick Disease of Dietary Origin: A Consideration of the Source of Prothrombin. *Am. J. Physiol.* 118:260 (Feb.) 1937.

6. Dam, Henrik; Schenheyder, Fritz, and Tage-Hansen, Erik: Studies on the Mode of Action of Vitamin K. *Biochem. J.* 30:1075 (June) 1936.

1. Rich, A. R., and Lewis, Margaret R.: *Proc. Soc. Exper. Biol. & Med.* 25:596 (April) 1928.

2. Aronson, J. D.: *J. Exper. Med.* 54:387 (Sept.) 1931.

3. Moen, J. K., and Swift, H. F.: *J. Exper. Med.* 64:319 (Sept.) 1936.

4. Moen, J. K.: *J. Exper. Med.* 64:355 (Sept.) 1936.

tion between the degrees of sensitivity of splenic cells and the skin reactivity of intact animals. Neither the in vitro splenic allergy nor the independent cutaneous hypersensitivity is correlated with the specific antibody titer of the blood serum. The cellular sensitivity in streptococcal infections, however, is less permanent in character than the control tuberculin sensitivity. Second and third generation transplants are demonstrably less hypersensitive than the first generation explant.

Moen's results are in accord with the growing opinion that bacterial anaphylaxis is a harmful rather than a defensive tissue mechanism. Cells from infected animals display an increased vulnerability to the toxicity effects of homologous bacterial production. Moen emphasizes the fact, however, that this conclusion is not applicable to nonbacterial antigens. Tissue cultures from animals sensitized to horse serum, egg albumin or beef lens, for example, "are not specifically inhibited when the respective antigens are added to tissue cultures." A continuation of this promising line of investigation may in time give a new basis for the interpretation of many allergic and immune phenomena.

Current Comment

GIOVAN COSIMO BONOMO

On June 20 the two hundred and fiftieth anniversary of the discovery of the parasitic nature of scabies by Bonomo will be celebrated. This occasion has already received the attention of the American Association of the History of Medicine, which adopted and forwarded a resolution to the Italian Society of Dermatology and Syphilology and the Italian Society of the History of Medicine and Natural Sciences for their joint commemoration of "Scabies Day." According to Friedman, "it was not until 250 years ago that for the first time in history the etiology of any one of the diseases known to man was discovered."¹ That disease was scabies and, although the cause and effect were correctly assigned in 1687, it was not until 1834 that Bonomo's discovery was confirmed by Renucci, who demonstrated its true nature experimentally. Sharp-eyed peasant women, long familiar with the itch and its cutaneous habitat, had taught Bonomo just where to find the parasite and how to remove it. With clinical acumen Bonomo and his associate studied their patients. With the microscope they studied the organism and its habits. Bonomo, however, was guilty of at least two errors: first in saying that the acarid has six feet, whereas it has eight, and secondly in stating that the parasite can almost always be found in the "watery pustules" or vesicles, whereas actually it is never found within them. Nevertheless the clinical and logical proof of the parasitic nature of scabies was beyond doubt, in spite of these errors and in spite of the failure to attempt proof by experimental inoculation.

1. Friedman, Reuben: Giovan Cosimo Bonomo, *M. Life* 44:3 (Jan.) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Society News.—Reuben L. Kahn, Sc.D., director of clinical laboratories, University Hospital, Ann Arbor, Mich., addressed the Pima County Medical Society, recently, on "The Basis of Allergy in Man."

Appointments to State Health Department.—Dr. Alvy N. Crain, Phoenix, formerly director of the Maricopa County health unit, has been appointed director of local health administration of the state department of health, succeeding Dr. George A. Hays; Dr. Jack B. Eason, Yuma, has been placed in charge of the bureau of maternal and child health. Dr. Crain graduated at the University of Louisville School of Medicine in 1913. Dr. Eason graduated at Jefferson Medical College, Philadelphia, in 1930.

ARKANSAS

Forty-Two Years a Secretary.—Dr. Thomas Douglass, Ozark, was guest of honor at a banquet, May 4, in celebration of his many years' service as secretary of the Franklin County Medical Society. Dr. Douglass, who is 69 years of age, has served continuously for forty-three years, with the exception of the year 1922 when Dr. Edward W. Blackburn, Ozark, held the office.

Pediatricians Elect Officers.—Dr. Edwin C. McMullen, Pine Bluff, was elected president of the Arkansas State Pediatric Association at its annual meeting in Little Rock, April 12. Dr. Garland D. Murphy, El Dorado, was chosen vice president and Dr. Madeline A. M. Melson, Little Rock, was reelected secretary. The speakers at the session included Dr. Frank Thomas Mitchell, Memphis, Tenn., on "Diarrhea and the Present Status of Treatment."

Society News.—At a meeting of the Benton County Medical Society in Bentonville, April 8, the speakers, among others, were Drs. Joseph L. Johnston on "Treatment of Hay Fever" and Fred R. Farthing, Springfield, Mo., "Modern Treatment of Sterility."—A symposium on the recent advances in therapy was presented before the Sebastian County Medical Society April 20 by Drs. Arless A. Blair, Thomas P. Foltz and Frederick H. Krock. The program included a discussion of protamine insulin, hypertonic sucrose solution and prontosil. All the speakers are from Fort Smith.

COLORADO

Three Deaths from Botulism.—Three women died of botulism in Trinidad, April 24, according to the bulletin of the state board of health. One of the women served beans, canned by a member of the family, at noonday April 21 and next day the three victims complained of the same symptoms: headache, dizziness, ocular disturbances and weakness. They were admitted to the hospital, April 23, all having difficulty in breathing, swallowing and speaking. One died early Saturday morning, one in the afternoon and the third at 11 p. m. A 250 Gm. guinea-pig that had been injected with 2 cc. of juice from the same jar from which the beans were taken died in about five hours with typical symptoms of botulism.

CONNECTICUT

"Brilliant Health Leader" Fined.—"Dr. Howard V. H. Inches, Dynamic and Brilliant Health Leader of America and England," was recently fined \$25 and costs, following his plea of guilty to a violation of the itinerant vender law, according to the *New England Journal of Medicine*. Inches had begun a course on nutrition which, preceded by three free lectures, carried an entrance fee of \$10 per person. Forty-eight persons are said to have joined the class and each one received a seventy-eight page booklet on nutrition. On investigation no record was found of the organization said to be sponsoring "Dr." Inches. Columbia University reported that Inches had listened to a few lectures during one term and that he did not matriculate for credit, had passed no examination and was not qualified as an authority on nutrition. He offered for sale Orzone Powder and Orzoil. The price of each was \$1 and each was indispensable to the other. When Inches was arrested,

several diplomas were seized which were ready for presentation to the class on the completion of the course. The diploma was issued in the name of the American Dietetic Research Foundation, it was stated. Another diploma found in Inches' possession acknowledged him to be a graduate of the British College of Osteopathy. Subsequent investigation disclosed that this diploma had been issued Aug. 10, 1936, whereas the college was not registered as a business until September 2. One of Inches' companions was fined \$10 and costs.

FLORIDA

State Society Appoints Business Manager.—Stewart G. Thompson, Dr.P.H., has resigned as director of the bureau of vital statistics of the state board of health, Jacksonville, to become business manager of the Florida Medical Association on a full time basis, it is reported. Dr. Thompson has devoted part time to the position for many years.

Annual Short Course for Practitioners.—The fifth annual short course for physicians in Florida will be held at the Orange Court Hotel, Orlando, June 21-26, under the auspices of the state medical association and the University of Florida. The evening sessions will be devoted to symposiums on tuberculosis and neurosurgery. Speakers in the former will include Drs. Pol N. Coryllos, New York; Rollin D. Thompson, Orlando, and Thomas M. Palmer, Jacksonville, while the speakers in the second will include Drs. Claude C. Coleman, Richmond, Va., and James G. Lyerly, Jacksonville. Other participants in the course will include:

Dr. Walter L. Biering, Des Moines, health commissioner of Iowa, Medicine.
Dr. Jesse O. Arnold, professor of obstetrics, Temple University School of Medicine, Philadelphia, Obstetrics.
Dr. Alexander J. Schaffer, department of pediatrics, Johns Hopkins University School of Medicine, Baltimore, Pediatrics.
Dr. Bayard Carter, professor of obstetrics and gynecology, Duke University School of Medicine, Durham, N. C., Gynecology.
Dr. Ralph N. Greene, Coral Gables, medical director, Eastern Air Lines, Neuropsychiatry.
Dr. Wilbur E. Burnett, assistant professor of surgery at Temple, Surgery.

IDAHO

Annual Registration Due July 1.—All practitioners of medicine and surgery holding licenses to practice in Idaho are required by law to register annually on July 1 with the Department of Law Enforcement and at that time to pay a fee of \$2. If a licentiate has not paid the annual registration fee by October 1, his license can be cancelled but will be restored within five years thereafter on payment of the delinquent fees and a \$10 penalty. If a license has been cancelled for more than five years, it can be reinstated only on the payment of \$25 and on the licentiate's passing an examination, the nature of which shall be determined by the Department of Law Enforcement.

ILLINOIS

State Tuberculosis Meeting.—The Illinois Tuberculosis Association held its annual meeting in Rockford, April 20, at the Nelson Hotel, with Dr. Henry R. Searle, Rockford, president, Winnebago County Tuberculosis Association, presiding. The speakers included:

Dr. Norman C. Bullock, commissioner of health of Rockford, Responsibility of Sanatorium Boards for Promoting Early Diagnosis of Tuberculosis.
Dr. Robinson Bosworth, Rockford, president, Illinois Tuberculosis Association, Tuberculosis in Apparently Healthy Individuals.

The afternoon program was devoted to the annual meeting of the Winnebago County Tuberculosis Association; guest speakers were:

Dr. Allan J. Hruby, Chicago, The Problems of Case Finding Among High School Students.
Dr. Jay Arthur Myers, Minneapolis, The Problem of Tuberculosis and Case Finding Among College Students.

Dr. Myers also addressed the annual meeting of the Winnebago County Tuberculosis Association early in the afternoon. Dr. Bosworth presented his presidential address after the banquet in the evening and Dr. James Burns Amberson Jr., New York, discussed "The Menace of Tuberculosis in Young People." All officers were reelected.

Chicago

Society News.—The Chicago Society of Internal Medicine was addressed, May 24, by Drs. Leroy H. Sloan and David Slight on "Syphilis: A Comparison of Wassermann and Kahn Reactions in a Series of 500 Positive Patients" and "Migraine" respectively. Dr. Walter Lincoln Palmer delivered the presidential address on "Graduate Education in Clinical Medicine." —Dr. Philip S. Hench, Rochester, Minn., discussed "Some Axiomatic Generalizations Useful in the Differential Diagnosis of Joint Diseases" before the Chicago Club for the Study of

Arthritis, May 12.—The Chicago Urological Society was addressed by Drs. Hymen J. Burstein, Decatur, on "Double Kidney with Y-Shaped Ureter and Ureteral Calculus in an Infant." A symposium on metastatic infections of the kidney was presented by Drs. Vincent J. O'Connor, Chicago, and Homer G. Hamer, Indianapolis, and case reports by Drs. Charles M. McKenna and Edward W. White. —Dr. Haven Emerson, New York, will address the Health Division of the Council of Social Agencies, June 15, on "The District Health Center—An Indispensable Instrument of the Civil Government of Large Cities."

IOWA

Personal.—Dr. Eugene L. Walsh, Hawkeye, has been appointed in charge of the Washington County Public Health Unit, succeeding Dr. Regnar M. Sorenson, Washington. —E. W. Neenan, D.D.S., Sioux City, has been appointed a member of the state conservation commission to succeed Dr. Everett E. Speaker, Lake View, who resigned.

Annual Clinic.—Mercy Hospital, Des Moines, held its third annual clinic June 2-3. The program included clinics, lectures and case presentations. At the annual banquet, the first evening, the speakers included Dr. Walter D. Abbott, president of the hospital staff, who presided; Joseph H. Allen, mayor of Des Moines, and Dr. Jacob Arnold Bargen, Rochester, Minn., who discussed "The Early Diagnosis of Intestinal Diseases."

State Medical Election.—Dr. Arthur W. Erskine, Cedar Rapids, was named president-elect of the Iowa State Medical Society at its annual meeting in Sioux City recently and Dr. Edward M. Myers, Boone, was inducted into the presidency. New vice presidents are Drs. Kenneth L. Johnston, Oskaloosa, and Archibald F. O'Donoghue, Sioux City; Drs. Robert L. Parker and Harold J. McCoy, Des Moines, are secretary and treasurer respectively. The next annual meeting will be at Des Moines May 11-13.

KENTUCKY

Personal.—Dr. Charles G. Baker, Louisville, has been appointed health officer of Fulton County to succeed Dr. Gracie R. Rowntree, Hickman, who has been appointed assistant health officer of Louisville, it is reported. —Dr. James C. Hancock, recently a member of the staff of the Indian Medical Service at Fort Apache, Ariz., has been made health officer of Hickman County. —Dr. Joseph J. Gerkins, Bedford, has been appointed health officer of Fleming County to succeed Dr. Chadwick W. Christine, who resigned to accept a similar position in Jefferson County. The change was effective April 30.

MAINE

State Medical Meeting at Belgrade Lake, June 20-22.—The eighty-fifth annual session of the Maine Medical Association will be held at the Belgrade Hotel, Belgrade Lake, June 20-22, under the presidency of Dr. Frederick T. Hill, Waterville. Conferences on miscellaneous topics will be held Monday and Tuesday mornings, at which the guest speakers will include Drs. Joseph H. Shortell and Augustus Thorndike Jr., both of Boston. Other speakers will include:

Dr. Frederick M. Law, New York, X-Ray of the Sinuses and Mastoids.
Dr. Jacob Schloss, Boston, Diagnosis and Follow Up of Chronic Inflammatory Lesions of the Stomach.
Dr. Frederick A. Coller, Ann Arbor, Mich., The Administration of Fluids to the Sick Surgical Patient.
Dr. William C. Quinby, Boston, The Operative Treatment of Urinary Stone.

There will be reunions of alumni of the medical schools of Boston, Johns Hopkins, Bowdoin, McGill and Harvard universities Monday; in the evening, a dinner meeting will be addressed by Dr. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, on medical economics. The annual banquet will be held Tuesday evening, when the presentation of fifty year service medals will be made. The speakers will be Governor Lewis Barrows; Franklin W. Johnson, LL.D., president, Colby College; Colonel Campbell, Sanford; Dr. Harris P. Mosher, Boston, and Kenneth G. Roberts.

MARYLAND

Dr. Harrop Joins Squibb and Sons.—Dr. George A. Harrop, associate professor of medicine, Johns Hopkins University School of Medicine, has been appointed director of research on the staff of E. R. Squibb and Sons, according to Science. A new research laboratory is in process of construction at New Brunswick, N. J., it was stated. Investigation along scientific lines will be carried on without necessary regard to its immediate practical outcome. It is also planned to undertake active clinical investigation with which to supple-

ment and give orientation to the laboratory studies. Dr. Harrop graduated at Johns Hopkins in 1916. He was appointed associate professor of medicine at his alma mater in 1925 and was also in charge of the chemical laboratory and work in diseases of metabolism and endocrinology.

Annual Meeting and Election of Medical Faculty.—Dr. Frank B. Hines, Chestertown, was elected president of the Medical and Chirurgical Faculty of Maryland at its annual meeting in Baltimore, April 27-28. Other officers are Drs. Frank S. Lynn, Baltimore; Richard C. Dodson, Rising Sun, and Everard Briscoe, Prince Frederick, vice presidents, and Walter D. Wise and Joseph Albert Chatard, both of Baltimore, who were reelected secretary and treasurer respectively. The scientific session, under the presidency of Dr. Arthur M. Shipley, included a symposium on present day problems of the physician with Drs. Richard T. Shackelford, Arthur J. Lomas and Maurice C. Pincoffs as the speakers. At a round table luncheon, the following, among others, spoke:

Dr. Huntington Williams, Occupational Diseases and Industrial Hygiene.

Dr. William F. Rienhoff Jr., Surgical Treatment of Nontuberculous Lesions of the Lungs and Mediastinum.

Dr. John Mason Hundley Jr., Inflammatory Malignant Diseases of the Cervix, Vaginitis Due to the Trichomonas and the Gonococcus, Cystitis and Urethritis.

Dr. Robert P. Bay, Industrial Surgery, Estimation of Permanent Partial Disability.

Dr. Eldridge L. Eliason, professor of clinical surgery, University of Pennsylvania School of Medicine, Philadelphia, delivered the annual Trimble lecture on "The Surgeon's Role in the Right Upper Quadrant," and Dr. Russell M. Wilder, Rochester, Minn., addressed the general meeting on "Clinical Investigations of Insulins with Prolonged Action."

MASSACHUSETTS

Personal.—Dr. Richard J. Neil has been appointed school physician of Methuen, succeeding Dr. Roy V. Baketel, who held the position thirty years.—Otto Krayner, professor of pharmacology, American University of Beirut, Syria, has been appointed associate professor of pharmacology at the Harvard University Medical School for five years beginning next September.

Conference on Health Education.—The twelfth annual conference of the New England Health Education Association was held at the Massachusetts Institute of Technology, Cambridge, June 4-5. Speakers included:

Lura Oak, Ph.D., Cambridge, Massachusetts Department of Public Health, Reading Disability and Its Relation to Social Maladjustment. Julia Ernestine Becker, A.M., associate in biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, Recent Progress in Nutrition: Its Significance.

Dr. Rolf Lium, Boston, extension secretary, Massachusetts Society for Social Hygiene, Social Hygiene in Health Education.

C. E. Turner, Dr.P.H., Cambridge, New Findings Concerning Intermittency in Growth.

Dr. Henry B. Elkind, Boston, medical director, Massachusetts Society for Mental Hygiene, Mental Hygiene in Education.

Society News.—Dr. George G. Smith, Boston, was elected president of the Massachusetts Society for Social Hygiene at its annual meeting in Boston, April 13.—Dr. Martha Brünner-Ornstein, Vienna, Austria, addressed the New England Physical Therapy Society, April 21, on "Recent Advances in Physical Therapy," and Dr. Afley Leonel Brett, Boston, "Low Back Strain."—A symposium on schizophrenia was presented before the Boston Society of Psychiatry and Neurology, April 15, by Dr. Louis H. Cohen, Hudson Hoagland, Ph.D., and Dr. Roy G. Hoskins.—Among others, Drs. Karl Jefferson Thomson and Mandel E. Cohen discussed "Changes in the Electrocardiograms and in the Contour of the Heart in Normal Pregnant Women" before the New England Heart Association, Boston, April 12.

MICHIGAN

Medical School to Publish a Journal.—The *Journal of the Wayne University College of Medicine* will make its appearance in June and will hereafter be published quarterly. The entire business and editorial staff is composed of members of the junior and senior classes of the medical college, while a faculty alumni board will serve in an advisory capacity. This is the first time the publication of a bulletin has been attempted by the students.

Medical Supplement in Detroit Free Press.—The Wayne County Medical Society is preparing a medical supplement, which will appear in the *Detroit Free Press*, June 20. Special committees have been appointed to prepare outlines of progress during the past twenty years in various medical specialties. The supplement will also include a diagram of the

administrative set up, and feature articles on the history and activities of the society. There will also be stories on the woman's auxiliary, the medical school and the board of health.

Personal.—Dr. Frederick G. Novy, Ann Arbor, was made an honorary member of the Wayne County Medical Society May 17.—Dr. Ragnar T. Westman, Bay City, has been appointed director of the recently organized Bay County Health Department. With his appointment, it was stated that the organization of the thirty-two county and district health departments in this state has been completed, serving 54 per cent of the rural population and 10.7 of the urban population.—Alfred F. Way has been appointed superintendent of Bronson Hospital, Kalamazoo.—Dr. Francis De Salvo has been named health officer of Niagara for two years.

MINNESOTA

University News.—Dr. Robert S. Stone, San Francisco, gave the annual address in the University of Minnesota Cancer Institute Lectureship, May 4, on "Theoretical and Practical Considerations of Supravoltage X-Rays, Neutrons and Artificial Radioactive Substances for Treatment of Cancer."

Radiologic Society Election.—Dr. Walter H. Ude, Minneapolis, was chosen president of the Minnesota Radiological Society at its recent annual meeting in St. Paul; Dr. Leo G. Rigler, Minneapolis, vice president, and Dr. Harry M. Weber, Rochester, secretary-treasurer.

New Health Officer of Rochester.—Dr. Thomas B. Magath, associate professor of pathology, bacteriology and immunology, Graduate School of Medicine, University of Minnesota, has been appointed health officer of Rochester, succeeding Dr. Charles H. Mayo, who held the position for twenty-five years.

Dr. Edgar Brown Reaches Retirement Age at Minnesota.—Dr. Edgar D. Brown, associate professor of pharmacology at the University of Minnesota School of Medicine, recently reached the retirement age. In 1902 Dr. Brown graduated from Western Reserve University School of Medicine, Cleveland, where he served from 1903 to 1906 as a member of the faculty. Since that time he has been associated with the University of Minnesota.

Ordinance Requires Ambulances to Carry Splints.—An ordinance was approved by the mayor of Crookston, April 16, requiring all ambulances to be equipped with first aid and splint appliances, to be sanctioned by the board of health, and requiring an attendant with a certificate of fitness. Passed through the efforts of Dr. Arthur Kahala, the ordinance applies to any ambulance or other vehicle, used for the transportation or conveyance of the sick or injured. The fracture committee of the state medical association and the regional committee of the American College of Surgeons are endeavoring to have similar ordinances passed in every city and town throughout the state in which ambulances are operated, to provide for proper splinting of fractures before the patients are transported to hospitals.

MISSOURI

Personal.—Dr. Richard Weissenberg, for many years a member of the medical faculty of the University of Berlin, has been appointed visiting professor of cytology at Washington University School of Medicine, St. Louis.

State Medical Election.—Dr. Bernard W. Hays, Jackson, was chosen president-elect of the Missouri State Medical Association at its annual meeting in Cape Girardeau, May 12, and Dr. Dudley S. Conley, Columbia, was installed as president. Dr. Edward J. Goodwin, St. Louis, continues as secretary. The next annual session will be held in Jefferson City.

Society News.—A Missouri chapter of the National Society for the Advancement of Gastro-Enterology has been formed in St. Louis with forty-one charter members. Dr. Horace W. Soper is president, Dr. Frank D. Gorham vice president, Dr. Charles W. Duden secretary and Dr. Lee Pettit Gay treasurer.—Dr. Oliver S. Gilliland has been elected president of the Kansas City Eye, Ear, Nose and Throat Society, succeeding Dr. William Byron Black.—The St. Louis County Medical Society was addressed, April 14, by Drs. Oscar P. Hampton Jr. on "Modern Treatment of Fractures of the Hip" and Clinton W. Lane, "Diagnosis and Treatment of Ringworm Infection of the Hands and Feet."—Drs. Joseph W. Gale, Madison, Wis., and Morris B. Simpson, Kansas City, were among the speakers before the Jackson County Medical Society, May 25; their subjects were "Advantages of Surgery in the Treatment of Pulmonary Tuberculosis" and "Feeding Problems in Laryngeal Tuberculosis" respectively.

NEBRASKA

District Meetings.—The spring meeting of the Third Council District was held at Humboldt, April 15, with addresses by the following members of the faculty of Creighton University College of Medicine, Omaha: Drs. John R. Kleyla, on "Recent Advances in the Treatment of Pneumonia"; Ralph H. Luikart, "Care of the Cervix in the Prevention of Cancer of the Uterus," and Earl A. Connolly, "Treatment of Leg Ulcers and Varicose Veins."—Drs. Abram E. Bennett and Richard H. Young, Omaha, addressed the Sixth Council District Medical Society at Wahoo, April 28, on "Recognition and Treatment of the Common Neuroses" and "Recognition, Management and Treatment of the Psychoses" respectively.

NEW HAMPSHIRE

Personal.—Dr. John F. Gile, Hanover, has been appointed a life trustee of Dartmouth College. Dr. Gile is the son of Dr. John M. Gile, 1887, who was also a Dartmouth trustee.

State Medical Election.—Dr. Clarence O. Coburn, Manchester, was chosen president-elect of the New Hampshire Medical Society at its annual meeting in Manchester, May 17, and Dr. Samuel T. Ladd, Portsmouth, was installed as president. Dr. Carleton R. Metcalf, Concord, was reelected secretary.

NEW JERSEY

Fifty Years of Practice.—Drs. Henry B. Diverty, Woodbury, and Eugene Z. Hillegass, Mantua, were honored with a surprise dinner in Woodbury, April 16, given by the Gloucester County Medical Society to celebrate their completion of fifty years in the practice of medicine. Both physicians are past presidents and the two oldest members of the society, it is reported.

Society News.—Dr. Irving Sherwood Wright, New York, addressed the Middlesex County Medical Society, Metuchen, recently, on "The Present Status of Treatment of Peripheral Vascular Diseases." Dr. Paul Reznikoff, New York, addressed the society recently on "Hematological Problems in the Practice of Medicine."—Dr. Temple S. Fay, Philadelphia, addressed the Gloucester County Medical Society, Woodbury, recently, on "Mechanism of Headache; Its Diagnosis and Treatment."—Dr. Charles Gordon Heyd, New York, President of the American Medical Association, addressed the Hudson County Medical Society, Jersey City, recently, on "Classification and Treatment of Goiter."—Dr. Frank W. Konzelmann, Philadelphia, addressed the Essex County Anatomical and Pathological Society in Newark recently on "Clinical Pathology in Bright's Disease." Dr. Arthur M. Fishberg, New York, discussed the paper.—Dr. George J. Heuer, New York, addressed the Bergen County Medical Society, Hackensack, April 13, on "Errors in the Diagnosis and Treatment of Acute Abdominal Conditions."

NEW MEXICO

Personal.—Dr. Harrison Eilers, Los Lunas, has been appointed health officer of the eighth district, with headquarters at Los Lunas. He succeeds Dr. Julian O. Long, who went to the third district in Albuquerque.

State Medical Election.—Dr. Eugene W. Fiske, Santa Fe, was chosen president-elect of the New Mexico Medical Society at its annual meeting in Clovis, May 14, and Dr. George W. Jones, Clovis, was inducted into the presidency. Dr. George T. Colvard, Deming, was elected vice president and Dr. Leo B. Cohenour, Albuquerque, was reelected secretary.

NEW YORK

Changes in Faculty at Albany.—Dr. John A. Sampson will relinquish the chairmanship of the department of gynecology and obstetrics at Albany Medical College, July 1, having reached the retirement age, according to the *New York Times*. He will continue his association with the school as Alden March professor of gynecology. Dr. Arthur W. Elting, professor of surgery for twenty-six years, will also retire, July 1, on account of having reached the age limit.

New Typhoid Carriers.—Forty-five new typhoid carriers were declared in 1936, giving a total of 383 carriers in the state, according to a report of the state department of health. Of the twenty-four carriers whose names were removed from the register during the year, eleven died; three were released from restrictions after submission of the required number of negative specimens following cholecystectomy, while the names of ten were removed because of change of residence of the

carrier to a community outside the jurisdiction of the department. Eighteen of the newly registered carriers were discovered through epidemiologic investigation of outbreaks and twenty-one through the requirement of release cultures from cases of typhoid. Only one large outbreak was traced to a carrier in 1936. This carrier had not previously been detected but was believed to have caused seven cases in an unsolved outbreak in 1932 and nine cases during the outbreak in 1935. Only ten cases of typhoid were traced to previously known carriers; of this number four were unimmunized household contacts of carriers.

New York City

Gifts to Columbia.—Gifts to Columbia University for medical research recently include the following:

John P. Pierce Foundation, \$35,800 for research in bacteriology.
W. K. Kellogg Foundation, \$10,000 for the study of rheumatic fever.
Rockefeller Foundation, \$3,500 for research on constitutional aspects of disease, under the direction of Dr. George Draper; \$4,000 for further study of "visual purple," vitamin A and vision under direction of Prof. Selig Hecht, and \$1,500 for research in nutritional encephalomalacia and muscular dystrophy, under direction of Hans T. Clarke.
Smith, Kline and French Laboratories, \$2,800 for research in pharmacology under Dr. Charles C. Lieb.
Chemical Foundation, \$2,500 for research on brain chemistry, under direction of Dr. Frederick Tilney.
The Anna Fuller Fund, \$1,500 for tissue culture work at the Institute of Cancer Research.
William J. Matheson Foundation, \$1,125 to be added to the Matheson Encephalitis Fund.

Society News.—Drs. Edward N. Packard, Saranac Lake, and Pol N. Coryllos addressed the Medical Society of the County of Kings, April 20, on medical and surgical aspects, respectively, of intrathoracic suppuration.—Dr. Jefferson C. Pennington, Nashville, Tenn., addressed the genito-urinary section of the New York Academy of Medicine recently on "Conservative Management of Damaged Renal Tissue."—Drs. Percy S. Pelouze and David Melvin Davis, Philadelphia, addressed the Medical Society of the County of Queens, recently, on "Prevention and Treatment of Venereal Disease" and "The Surgical Aspect of Venereal Disease" respectively.—A program on heart disease arranged by the Bronx Pathological Society was presented before the Bronx County Medical Society, April 21, by Drs. Louis R. Ferraro, William Aronson and Joseph C. Ehrlich.

Mr. Van Cleve is Dead.—Edward M. Van Cleve, principal emeritus of the New York Institute for the Education of the Blind, died at his home, May 21, aged 70. Mr. Van Cleve had assisted in the formation in 1915 of the National Society for the Prevention of Blindness, sponsored by the Russell Sage Foundation, and became its first managing director, a position he held for nine years. At one time he was president of the Ohio State Commission for the Blind and in 1907 was superintendent of the Ohio State School for the blind. In 1931 Mr. Van Cleve was awarded the Leslie Dana Gold Medal by the National Society for the Prevention of Blindness in cooperation with the St. Louis Society for the Blind, through which the medal is offered by Leslie Dana, St. Louis, for "outstanding achievements in the prevention of blindness and the conservation of vision."

NORTH CAROLINA

Extension Course in Sixteen Counties.—A series of lectures for physicians was presented during March and April in sixteen counties under the auspices of the University of North Carolina School of Medicine and the extension division of the university. The speakers included Drs. Stewart R. Roberts, Atlanta; Thomas Grier Miller, Philadelphia; Howard Fox, New York; James R. McCord, Atlanta; Christian P. Segard, Leonia, N. J.; George P. Müller, Philadelphia, and Charles F. McKhann, Boston. The counties in which the course was given are Wake, Franklin, Warren, Granville, Johnston, Edgecombe, Nash, Wilson, Cumberland, Person, Chatham, Vance, Hartnett, Lee, Wayne and Orange.

All Servants to Be Examined for Syphilis.—All domestic servants in North Carolina are required to have an examination at least once a year, or as often as the employer desires, to determine the presence of syphilis or tuberculosis, in accordance with a law recently enacted in the state. Domestic servants presenting themselves for employment must, under the law, furnish the employer with a certificate from a practicing physician or the public health officer of the county in which they reside, certifying that they have been examined within two weeks prior to the time of presentation of the certificate, that they are free from all contagious, infectious or communicable diseases, and showing the nonexistence of any venereal disease that might be transmitted. The original report showing the tests to be negative from a laboratory approved by the state board of health for making Wassermann and other tests must accompany the certificate.

NORTH DAKOTA

State Medical Election.—Dr. William H. Long, Fargo, was chosen president-elect of the North Dakota State Medical Association at its annual meeting in Grand Forks, May 18, and Dr. Edwin L. Goss, Carrington, was installed as president. Vice presidents are Drs. Harry A. Brandes, Bismarck, and Cyril J. Glaspel, Grafton. Dr. Albert W. Skelsey, Fargo, was reelected secretary, and Dr. William W. Wood, Jamestown, treasurer. The next annual meeting will be held in Bismarck. A tribute was paid to the first president of the society, Dr. Joseph G. Millspaugh, as a feature of its fiftieth anniversary, when excerpts from the first annual report were read by his daughter, Mrs. A. W. Ide, St. Paul. Another notable feature of the annual session this year was the special ceremony held in honor of fourteen members of the society who were licensed to practice in Dakota Territory before North Dakota became a state in 1889. Dr. James Grassick, Grand Forks, the only member known to have attended the organization meeting, presided. The fourteen members are Drs. James P. Ayleen, Grafton; Frederick N. Burrows, Bathgate; Andrew Carr, Minot; Edward I. Donovan, Langdon; Amos A. Flaten, Edinburg; Charles B. Harris, Pembina; Arthur T. Horsman, Devils Lake; George McIntyre, Long Beach, Calif.; Charles MacLachlan, San Haven; Henry O'Keefe, Grand Forks; Thomas C. Patterson, Lisbon; William H. Welch, Larimore, and Drs. Grassick and Glaspel.

OHIO

Pharmaceutical Company in New Quarters.—The William S. Merrell Company, Cincinnati, has moved into a newly constructed laboratory, factory and office building which is located just outside the city limits of Cincinnati, near the village of Reading. The buildings are thoroughly modern and there is additional land to provide for future expansion. The company was founded in 1828.

Society News.—At a meeting of the Academy of Medicine of Cleveland, May 21, Dr. Alfred W. Adson, Rochester, Minn., discussed "The Relief of Intractable Pain." The academy presented a "medical musical medley" May 6.—Dr. Linn J. Boyd, New York, lectured at Huron Road Hospital, East Cleveland, June 9, on "Newer Studies in Shock."—Dr. John Alexander, Ann Arbor, Mich., among others, addressed the Clinical Society of the University Hospitals, Cleveland, May 20, on "Pulmonary Abscess and Bronchiectasis."

Rehabilitation After the Flood.—Five members of the U. S. Public Health Service, cooperating with the Ohio State Department of Health, have been stationed in the flooded counties of the state, to assist local health officials in the rehabilitation program now under way. The project includes the restoration of public and private water supplies, the protection of milk and food supplies, disposal of sewage on both public and private property, and disposal of dead animals. According to the state department of health, about 100,000 inoculations against typhoid were administered by the department alone, not counting those given by local physicians, a complete record of which is not yet available. There were 10,000 private wells and cisterns chlorinated. According to *Ohio Health News*, April 1, only three cases of typhoid had been reported up to that time and, in Portsmouth, fewer deaths and more births had been reported during the flood period than in other years during the same period.

OREGON

Plague-Infected Ground Squirrels.—According to *Public Health Reports*, a lot of fifty-six fleas taken from Oregon ground squirrels, shot 14 miles north of Lakeview, in Lake County, were found to be plague infected, May 7.

PENNSYLVANIA

Dr. Buyers Honored.—Dr. Edgar S. Buyers, Norristown, was honored by the Montgomery County Medical Society, April 23, when he concluded twenty years as secretary of the society to become its president. He was presented with a gold watch and chain. Dr. Buyers took office in 1917 and it is reported that he was absent only once and that when he was on official business for the society. He is chairman of the board of trustees of the Medical Society of the State of Pennsylvania and was formerly counselor for the second district.

Philadelphia

Society News.—Dr. Walter Estell Lee, among others, addressed the Philadelphia Pediatric Society, May 11, on "Treatment of Burns with Special Reference to Use of Tannic Acid and Silver Nitrate."—Dr. George Packer Berry, Roch-

ester, N. Y., was the guest speaker before the Pathological Society of Philadelphia, May 13; he discussed "Observations on the Transformation of the Virus of Rabbit Fibroma (Shope) into That of Infectious Myxomatosis (Sanarelli)."

Dr. Krusen Honored.—Dr. Wilmer Krusen, president of the Philadelphia College of Pharmacy and Science since 1927, and formerly president of the Philadelphia County Medical Society, was guest of honor at a dinner, May 26, given by friends and colleagues to celebrate his sixty-eighth birthday. Dr. Krusen was born in Richboro, Pa., May 18, 1869, graduating at Jefferson Medical College in 1896. Beginning his career as a pharmacy clerk in 1886, he became professor of gynecology at Temple University School of Medicine in 1902. He subsequently served as director of public health of Philadelphia, as president of the Philadelphia Obstetrical Society, Philadelphia Clinical Society, the state health association and the Philadelphia Medical Club, and is a member of the committee on public relations of the state medical society.

TENNESSEE

Society News.—Dr. Franklin B. Bogart addressed the Hamilton County Medical Society, Chattanooga, April 22, on "Radiation Therapy in Pelvic Lesions," and Dr. William D. Anderson on "Endocrinology in Childhood."—At a meeting of the Hardin, Lawrence, Lewis, Perry and Wayne Counties Medical Society in Linden, recently, the speakers included Drs. Watt Yeiser, Columbia, on "Indications for and Demonstration of Practical Oxygen Therapy"; Frank E. Whitacre, Memphis, "Treatment of Eclampsia," and Charles M. Hamilton, Nashville, "Treatment of the Commoner Skin Diseases."—Dr. Walter M. Luttrell, Knoxville, addressed the Knox County Medical Society, April 6, on diabetes mellitus.—A symposium on thyroid disease was presented before the Memphis and Shelby County Medical Society, April 20, by Drs. William C. Chaney, Casa Collier, Walter W. Robinson and William R. Bethea.

VIRGINIA

Portrait of Dr. Long.—The section on the history of medicine of the Richmond Academy of Medicine, Richmond, presented a portrait of Dr. Crawford W. Long to the academy at a meeting, April 13. The presentation was made by Dr. Carrington Williams and the speech of acceptance by Dr. Marvin Pierce Rucker, president of the academy, both of whom discussed the historical aspect of anesthesia. Other speakers were Drs. Beverley R. Tucker, who reviewed the life and work of Charles Edward Brown-Sequard, and Hubert A. Royster, Raleigh, N. C., "The Adventurous Life of Edward Warren Bey."

WISCONSIN

Board Denies Recognition to Foreign Graduates.—Graduates of foreign medical schools, with the exception of graduates of Canadian schools, will not be recognized in the future by the Wisconsin State Board of Medical Examiners, in accordance with a resolution unanimously approved by the board recently. The action was taken because of the board's inability to determine the reputability of the foreign schools concerned, it was stated.

Personal.—Dr. Frank O. Brunckhorst has been appointed health officer of Neenah, succeeding Dr. Bryce K. Ozanne, resigned, effective May 1.—Dr. Lewis Rothman was honored at a reception, April 4, given by the civic clubs of Wittenberg, in recognition of his fifty years in the practice of medicine. He is a charter member of the Shawano County Medical Society.—Dr. Timothy L. Harrington, Milwaukee, a member of the staff of the Wisconsin Anti-Tuberculosis Association since 1919, has been appointed medical director of River Pines Sanatorium, Stevens Point, succeeding Dr. Harold M. Coon, who has been named superintendent of the state tuberculosis sanatorium at Statesan.

HAWAII

Lectures on Obstetrics and Pediatrics.—A series of lectures on obstetrics and pediatrics was given at various places in Hawaii recently under the auspices of the bureau of maternal and infant hygiene cooperating with the Hawaii Territorial Medical Association. The lecturers were Drs. Fred L. Adair, professor of obstetrics and gynecology, Medical Department, Division of Biological Sciences, University of Chicago, and Clifford G. Grulee, clinical professor of pediatrics, Rush Medical College, Chicago. The program included a public talk at Kahului and Lihue and a repetition of the lectures before the Kauai County Medical Society.

GENERAL

Study of Neoplastic Diseases.—The American Association for the Study of Neoplastic Diseases will hold its next meeting at Johns Hopkins Hospital, Baltimore, June 24-25. A demonstration of microscopic pathology will make up the program. Members wishing to present a case should send 100 micro sections of the material to Dr. Charles F. Geschickter at the hospital. The September meeting of the association will be held at the Mayflower Hotel, Washington, D. C., September 9-11.

New Publication on Tumor Therapy.—A new monthly journal, the *Review of Tumor Therapy*, has made its appearance. It presents practical information that will be usable in treating patients and the latest methods and procedures. It will also correlate the essentially related fields of surgery, radiology and pathology. The editorial committee is composed of Drs. Isaac A. Bigger, Richmond, Va.; Robert S. Cathcart, Charleston, S. C.; Charles F. Geschickter, Baltimore; Benjamin Gruskin, Philadelphia, and Kenneth M. Lynch, Charleston. The editorial and business address is P. O. box 508, Charleston, S. C.

Courses for Teachers of Sight-Saving Classes.—The National Society for the Prevention of Blindness announces that courses of training for teachers and supervisors of sight-saving classes will be offered at several colleges during the summer sessions. Elementary courses will be given at Western Reserve University, Cleveland, June 21 to July 30; Wayne University, Detroit, June 29 to August 6, and Teachers College, Columbia University, New York, July 12 to August 20. Courses for advanced students will be offered at Western Reserve University, June 28 to July 31, and Teachers College, Columbia, July 12 to August 20. Details may be obtained from the director of the course at each school.

Association for the Advancement of Science (Section N).—The one hundredth meeting of the American Association for the Advancement of Science will be held in Denver, June 21-26. In the section on medical sciences (N) the program Tuesday and Wednesday will include a symposium on diseases caused by acid-fast bacteria. A discussion of leprosy will make up the program Thursday, while Friday's session will open with a memorial address on the life of Dr. Henry Sewall. The presentation of papers on tuberculosis and diseases of the chest will conclude the session. Speakers at the various sessions will include:

Dr. Edward Jackson, Denver.
Dr. Florence R. Sabin, New York.
Mr. Perry Burgess, New York, president, American Leprosy Foundation.

New Book of Abstracts on Anesthesia.—The Journal Club of the Section on Anesthesia, Mayo Clinic, Rochester, Minn., has compiled a group of abstracts on anesthesia under the title "Anesthesia Abstracts Volume I." The work was supervised by Dr. John S. Lundy with the assistance of Dr. Richard M. Hewitt and the division of publications of the clinic. The first issue contains 207 abstracts from eighty-eight journals, the work of thirty-five abstracters, and, in order to avoid conflict, each abstract differs from abstracts appearing elsewhere. Priced at \$2, the compilation may be purchased from the Burgess Publishing Company, 426 South Sixth Street, Minneapolis. Volume II is now in process of publication, but the appearance of subsequent issues will depend on the preparation of a sufficient number of abstracts to warrant it and the evidence that they are wanted. It was announced that the principal need is for English abstracts of foreign articles.

The Rocky Mountain Conference in Denver.—The first Rocky Mountain Medical Conference, sponsored by the state medical societies of Colorado, New Mexico, Utah and Wyoming, will be held in Denver, July 19-21. The object is to bring together practitioners of the Mountain states and adjoining Middle West and Southwest states to hear discussions of general interest but especially to discuss problems peculiar to the region: Rocky Mountain spotted fever, silicosis among quartz miners, and sanitary problems incident to the tourist influx. Speakers will include Drs. Thomas Parran, surgeon general, and Roscoe R. Spencer of the U. S. Public Health Service, Washington, D. C.; Walter C. Alvarez, Rochester, Minn.; Walter E. Dandy, Baltimore; Julius H. Hess, Herman L. Kretschmer and Walter L. Palmer, Chicago; Hayes E. Martin, New York; William B. Carrell, Dallas; Leo G. Rigler, Minneapolis; Charles C. Dennis, Kansas City, Mo.; Gabriel Tucker, Philadelphia; Sterling Bunnell, San Francisco; Andrew J. Browning, Portland, Ore., and Earl C. Sage, Omaha.

Trailer Camp Sanitation.—At the annual conference of State and Provincial Health Authorities of the United States and Canada with the U. S. Public Health Service at Washington in April the committee on interstate relations offered

recommendations directed toward improvement of sanitation in trailer camps. It was first urged that state health departments make efforts to acquaint tourists with their obligations to the rest of a community by working with tourist and trailer organizations in disseminating information concerning precautions to be observed. Suitable regulations under general health laws and enactment of such general laws where they do not exist were recommended, but the committee advised against specific laws unless absolutely necessary. Finally it was suggested that a special committee on trailer sanitation be appointed to cooperate with tourists' organizations and trailer manufacturers with a view to the standardization of type, size and location of waste water and sewage outlets to facilitate the design of camp sewer systems.

Association of Genito-Urinary Surgeons.—The forty-ninth annual meeting of the American Association of Genito-Urinary Surgeons will be held at the Seignior Club, P. Q., Canada, June 14-16. The following speakers are included on the program:

Drs. William F. Braasch, Rochester, Minn., and James W. Merriks Jr., Clinical and Radiologic Data with Congenital and Acquired Single Kidney.
Drs. David W. MacKenzie, Montreal, and Allan B. Hawthorne, The Ectopic Kidney: Surgical Aspects in a Series of Ectopic Kidneys.
Drs. Alexander R. Stevens, New York, and William R. Delzell, Traumatic Rupture of the Bladder with Data on Twenty-Seven Cases.
Drs. Roger C. Graves, Boston, and Richard Dresser, Experiences with High Voltage Roentgen Therapy in the Treatment of Malignant Tumors of the Urinary Bladder.
Drs. Hugh Cabot and John M. Pace, Rochester, Minn., Methods of Selecting the Proper Operative Treatment for Cancer of the Bladder.
Dr. Hugh H. Young, Baltimore, Progress in Urology, Retrospective and Prospective.
Drs. David W. MacKenzie, Montreal, and Magnus I. Seng, Montreal, Obliteration of the Ureter in a Congenital Kidney with Hydro-nephrosis.
Drs. Ira R. Sisk, Madison, and Otto E. Toenhart, Madison, Glucuronic Acid as a Urinary Acidifying Agent.
Drs. Archie L. Dean Jr., New York, and Joseph H. Farrow, Erythroplasia of the Penis.

Society News.—Dr. Walter E. Garrey, Nashville, Tenn., was elected president of the American Physiological Society at its recent annual meeting, and Dr. Andrew C. Ivy, Chicago, reelected secretary. The next annual session will be held in Baltimore, probably in April.—At a meeting of the American Society for Clinical Investigation, May 3, Dr. John R. Paul, New Haven, Conn., was chosen president, and Dr. Joseph M. Hayman Jr., Cleveland, reelected secretary. The next annual meeting will be held in Atlantic City, N. J., May 2, 1938.—Dr. Neil Dayton, Boston, was chosen president-elect of the American Association on Mental Deficiency at its annual meeting in Atlantic City, May 5-8, and Dr. Harry C. Storrs, Wassaic, N. Y., was installed as president. Dr. E. Arthur Whitney, Elwyn, Pa., was reelected secretary and Richmond was named for the place of the next annual meeting.—At the annual session of the American Society of Biological Chemists, April 23, Glenn E. Cullen, Ph.D., Cincinnati, was elected president; William C. Rose, Ph.D., Urbana, Ill., vice president, and Henry A. Mattill, Ph.D., Iowa City, was reelected secretary. The next annual meeting will be held in Baltimore.—Dr. Kenneth D. Blackfan, Boston, was chosen president of the American Pediatric Society, May 1, and Dr. Hugh McCulloch, St. Louis, reelected secretary. The next annual session will be in Bolton Landing, N. Y., June 9-11.—Dr. George R. Minot, Boston, was chosen president of the Association of American Physicians at its annual meeting in Atlantic City, May 5; Dr. Eugene F. Du Bois, New York, vice president, and Dr. Hugh J. Morgan, Nashville, Tenn., was reelected secretary.

Changes in Status of Licensure.—The California State Board of Medical Examiners reports the following action taken at its meeting February 8-11:

Dr. Edward H. Anthony, Los Angeles, probation for three years without narcotic privileges.
Dr. Francis James Bold, Montebello, license restored, placed on probation for five years.
Dr. Samuel D. Burgeson Jr., Los Angeles, placed on probation for five years without narcotic privileges.
Dr. Merton E. Eastman, San Andreas, probation for three years.
Dr. Thomas Flint Jr., Redding, license revoked for narcotic addiction.
Dr. James Harvey Johnston, San Francisco, probation for five years without narcotic privileges.
Dr. John G. Lenz, Redondo Beach, license restored; placed on probation for five years.
Dr. Ramon Lopez, Brawley, license restored, placed on probation for five years without narcotic privileges.
Dr. Leroy J. Otis, Norwalk, placed on probation for five years without narcotic privileges.
Dr. Allen H. Peck, Ventura, placed on probation for five years without narcotic privileges.
Dr. Byron H. Pelton, Compton, license restored, probation for five years without narcotic privileges.
Dr. Leo Morton Schulman, Los Angeles, license revoked, for alleged narcotic dereliction.
Dr. Henry C. Wallace, Fresno, placed on probation for five years without narcotic privileges.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 15, 1937.

Extension of the Use of Cesarean Section

At a meeting of the North of England Obstetrical and Gynecological Society, Prof. A. M. Claye advocated a wider use of cesarean section, which a few years ago was almost limited to cases of contracted pelvis and of occasional cases of fibroids or ovarian tumors obstructing labor. The operation had a high mortality when done late in labor, because the uterus was already infected. The infection easily passed through the wound into the general peritoneal cavity. It was therefore considered that when intervention was necessary late in labor and forceps delivery was impossible owing either to small dilatation of the cervix or to excessive disproportion, craniotomy was the safer operation. But the introduction of the lower segment operation had altered this. It was definitely safer than craniotomy, except possibly in some cases in which forceps had failed. If the uterine wound became infected, the peritonitis was likely to be pelvic, with low mortality. The lower segment had the advantage over the classic section that the scar was situated in a quieter part of the uterine muscle, less liable to the stresses and strains of contraction and relaxation during the puerperium. A better scar formed with less danger of rupture in a subsequent pregnancy. Finally, there was less danger of the scar contracting dangerous adhesions to other organs.

INDICATIONS FOR THE LOWER SEGMENT OPERATION

Claye has performed the lower segment operation in thirty-five cases in four years, seventeen of which were cases of contracted pelvis. He now carries out trial labor in all cases of disproportion unless the pelvis is very small. He allows a variable time for the head to engage after rupture of the membranes, provided there is no maternal or fetal distress. Of the remaining cases four were examples of inertia and five of occipitoposterior position. He considered the operation particularly advantageous for the late case. Here the lower segment is thinned out and the hemorrhage is negligible. But if the operation is performed before labor the lower segment is often not formed and thick muscle has to be incised. There is much hemorrhage, which is difficult to control. Therefore for patients operated on before labor, when the risk of infection is minimal, Professor Claye still performs the classic cesarean section. Other indications for which he sometimes performed the lower segment operation were heart disease (when he intended to perform the classic operation but the patients forestalled him by going into labor), carcinoma of the cervix and brow presentation.

INDICATIONS FOR THE CLASSIC OPERATION

Claye's classic cesarean sections numbered 125, of which ninety-two were performed for contracted pelvis with disproportion. The two next most frequent indications were heart disease and placenta praevia (seven cases each). The decision to operate for heart disease was reached in consultation with a cardiologist. If the patient was considered fit to stand the operation and unlikely to bear the strain of another pregnancy well, section with bilateral salpingectomy was done. All the mothers and babies did well. Cesarean section has the great advantage that sterilization can be carried out at the same time. Claye seriously considers section in all cases of complete placenta praevia in a primipara in good condition when the baby is alive and in good condition. As the lower segment is seldom thinned out in placenta praevia and may show large vessels, Claye always does the classic operation. But his treatment of choice for placenta praevia is Willett's forceps.

Toxemia he considers a rare indication for cesarean section. In one case it was chosen in order that the patient might be sterilized at the same time. He no longer performs section for accidental hemorrhage, as he believes that it increases the maternal risk.

The Radium Treatment of Cancer

The seventh annual report of the National Radium Trust and Radium Commission, which has just been published, reviews the radiotherapy of cancer in Great Britain as carried out at thirteen national centers and a number of smaller centers and recognized hospitals. In most there has been a tendency to replace the interstitial use of small quantities of radium by the external application at a considerable distance of large quantities. A difficulty in attempting to assess the value of different methods of treatment by the use of survival rates is that a large number of combinations of different methods of treatment have been used. In the treatment of carcinoma of the breast for example, as many as eighty-six combinations were distinguished. The most noticeable change in treatment is an increasing use of high voltage x-rays and a diminution in the practice of interstitial needling in carcinoma of the cervix. In carcinoma of the breast the main change has been in the use of surface radiation. Patients with carcinoma of the breast in later stages have a slightly better three year survival rate under interstitial irradiation combined with excision than under the former alone. In carcinoma of the cervix, x-rays combined with the "Stockholm method" give a greater freedom from recurrence than the latter alone. In carcinoma of the tongue a high mortality is found associated with the operation of block dissection of the cervical glands.

CANCER OF THE BREAST

For the purpose of analysis, the cases have been divided into three stages: (1) growth limited to the breast, (2) axillary glands invaded, (3) further invasion. When the growth was

Percentage Net Survival Rates from All Methods of Treatment in Which Radium Was Employed

Stage of Disease	Net Survival Rate at	
	Three Years	Five Years
1.....	70.1 (340)	50.0 (109)
2.....	40.3 (627)	22.4 (144)
3.....	18.8 (711)	13.6 (219)
All stages.....	37.2 (1,678)	24.6 (472)

The number of cases is given in parentheses.

Percentage Net Survival Rates from All Methods of Treatment in Which Radium Was Employed

Stage of Disease	Net Survival Rate at	
	Three Years	Five Years
1.....	67.1 (370)	49.4 (65)
2.....	48.4 (539)	43.7 (122)
3.....	29.8 (788)	24.0 (193)
4.....	12.6 (351)	7.2 (72)
All stages.....	37.3 (2,058)	31.1 (475)

still in stage 1, more than two thirds of the patients were alive at the end of the third year after treatment and half were alive five years after treatment. The low survival rate in stage 3 is accounted for by the fact that in many cases only palliative treatment was possible.

CARCINOMA OF THE CERVIX

Carcinoma of the cervix was considered in four stages: (1) growth limited to the cervix with the uterus mobile; (2) lesion spreading into fornices with or without infiltration of the para-

metrium, the uterus retaining some mobility; (3) nodular infiltration of the parametrium with limited mobility of the uterus; (4) massive infiltration of the parametrium extending to the pelvis.

CARCINOMA OF THE TONGUE

In the earliest stage, when the growth is confined to the tongue and no glands are involved, about one half of the patients are alive after three years and one fourth after five years. In the more advanced stages the survival rate is low.

PARIS

(From Our Regular Correspondent)

May 15, 1937.

Regulations for Organization of Public Health Service

France is divided for administrative purposes into eighty-six departments, each of which has a representative of the central government, situated in Paris, termed the prefect, whose duties correspond to those of a state governor in the United States. The departmental service of inspection and control of public health, as created by a law passed in October 1936, is directed by an inspector of hygiene. The minister of public health, Mr. Sellier, issued orders, April 17, which aim to reorganize the public health service of each department on a new basis. The inspector of hygiene will be obliged to live in the principal city (county seat) of the department to which he has been assigned and will be responsible to the prefect for carrying out all instructions received from the ministry of public health. The inspector's reports, after having been sent to the prefect, will be forwarded to the minister of public health in Paris. The inspector of hygiene must be well qualified to deal with all questions relating to public health and social hygiene that may arise. He will have direct control of the work of all organizations receiving state aid and will act as secretary of the departmental council of hygiene and all allied bodies whose purpose is to provide for and coordinate the sanitary organization of his department.

Inspectors must pass an examination, must be French citizens and must have not only the degree of M.D. but also one of public health from a French university. They must also have served three months as assistants in a departmental service of hygiene or in the health department of a city of at least 100,000 inhabitants.

The examining board will include the directors of hygiene and of personnel of the ministry of public health, an inspector general of hygiene, a competent sanitary engineer and two members of the superior council of hygiene chosen from the faculties of the medical schools. The successful candidate will serve a year on probation before being definitely appointed. The age limit for candidates will be 60 years, and they will not be allowed private practice, except in cities of less than 50,000 inhabitants. Any orders pertaining to public health that are issued by mayors of cities or smaller aggregations must now be submitted to the prefect and the council of hygiene of each department before being put into effect.

Cysts of the Lung

At the April 9 meeting of the Société médicale des hôpitaux, Brulé and his associates reported the case of a man, aged 38, with intense dyspnea and bronchitis. He had been treated for asthma and emphysema since the age of 9 years. Radiographic (in profile) examination of the chest revealed the presence of aerohydrous areas at the base of the right lung, on the basis of which a clinical diagnosis was made of congenital pulmonary cysts, which was confirmed at necropsy. There was also an advanced pulmonary emphysema associated with areas of sclerosis, and a number of cavities in the right lower lobe filled with pus. These cavities did not show any of the characteristics of congenital cysts and hence were regarded as pseudo-

cysts, the result of the emphysematous changes. The authors thought that such secondary cysts were often mistaken for congenital cysts.

Armand-Delille and his associates studied congenital cysts (congenital pseudobronchiectases) in children. In pulmonary tuberculosis in children they observed not only cases of typical bronchiectasis associated with previous inflammatory changes but also changes, as seen radiographically, in the form of clear images with a more or less circular outline as confirmed by iodized oil. They were able to find lesions showing the picture of cysts in ten cases at necropsy. In only one had an ante-mortem diagnosis been made, and this with the aid of iodized oil.

The first paper read at the April 16 session was by Sayé of Barcelona, Spain, who stated that there were three principal types of pulmonary air cysts: first, the giant or balloon cyst type, which varies greatly in size; second, the polycystic lobar type of varying aspect, at times difficult to differentiate from tuberculosis; and, third, cysts associated with the obstruction of certain bronchi. The last named are especially important to recognize. These cysts can suppurate and be mistaken for an encysted pleurisy.

Ameuille and Rendu read a paper on the significance of pulmonary cysts in adults. They agreed with the opinion that cysts undoubtedly occur which are of congenital origin, but, in middle aged and older adults, air cysts are found which appear to be of recent origin; i. e., acquired. The authors emphasized the difficulty of differentiating between cysts and other intrapulmonary cavities containing air. Acquired cysts in adults are evidently of emphysematous origin.

Pierre Lereboullet, Marcel Lelong and Jean Bernard presented the thoracic films from a nursling of 4 months who, after a febrile course of short duration, suddenly showed on the films an ovoid gaseous area (occupying the lower half of the left lung) with thin borders. After remaining stationary for two months, the area gradually changed position from the periphery to the center of the lobe and then disappeared. They considered this area an example of a huge emphysema. Two similar cases were recently reported by them as "obstructive emphysema." Debré believed that many cysts were the result of an obstructive emphysema.

Cathala and Brincourt reported a case of multilocular cysts of the lung in a child. In spite of the typical radiologic picture and numerous negative examinations for tubercle bacilli, the child was kept in a sanatorium for fourteen months because of a history of tuberculosis in the family.

Comby believed that there was a close relation between bronchiectases and pulmonary cysts in both the congenital and acquired forms.

A Rapid Method of Production of Tetanus Antitoxin

At the March 13 meeting of the Société de biologie Ramon, Metayer and Mustapha reported a rapid method of obtaining tetanus antitoxin from horses. If the horses have been vaccinated against tetanus one or several years previously and are then immunized with progressive doses of tetanus anatoxin to which tapioca has been added, only three weeks is required after beginning this hyperimmunization before one is able to obtain a serum containing sufficient tetanus antitoxin to be employed in specific treatment. Horses not previously vaccinated and given the same hyperimmunization yield a serum incomparably less rich in antitoxin.

International Congress on Psychiatric Problems in Children

A meeting in Paris on psychiatric problems in children will begin July 24 and end on the 28th. The following specialists will read papers: Hamburger of Austria, Ley of Belgium, Weygandt of Germany, Cerietti of Italy, Bouman of the Netherlands, Claparede of Switzerland, Oseretzky of Russia

and Healy of the United States. The three questions to receive special consideration are (1) general psychiatry, (2) psychiatric problems in school children and (3) psychiatry from the medicolegal standpoint. Those wishing to take part in the congress or to receive information regarding the meetings can write to Dr. Grimbert, 11 rue Duroc, Paris.

BERLIN

(From Our Regular Correspondent)

May 12, 1937.

Virus Research

An extensive discussion of virus research and virus disease took place recently in the Hamburg Medical Society. Kurt Herzberg, Greifswald hygienist, spoke first on "Virus Research as a Present-Day Activity." Thus far one has had to frame a satisfactory definition of virus in terms of an obligatory cell parasitism. Heretofore, only animal experiments based on photodynamics have produced favorable chemotherapeutic results. In man the chain of infection is quickly broken, as a rule; frequently not a single second transmission occurs. The interrelation of virus and tumors can be demonstrated on the basis of observations made by Rous and Shope. Attention is called to the difference existing between, on the one hand, those chicken sarcomas and rabbit papillomas indisputably produced by virus and, on the other hand, those rabbit carcinomas produced by painting with tar. The infective material of tumors in animals acts with respect to specificity like types of virus. It is a remarkable fact, moreover, that the same virus can exhibit twofold pathogenic properties; the virus of the Shope fibroma, for example, may at first act as a virus of fibroma and again as a virus of inflammation. And there are other examples in point.

Nauck discussed the pathology and cytology of virus diseases. The study of cellular and tissue changes provides in connection with the demonstration of an intracellular agent important data on the biologic behavior of certain types of virus in the organism attacked. The histopathologic alterations that have already for some time been the object of well known exhaustive investigation are in their totality nonspecific for the agents of virus groups. It is a question of inflammatory proliferative and degenerative processes which, according to the type of virus, differ greatly both in extent and chronological succession. Particular types of virus are recognized not only by the difference in the resultant tissue reactions but also by the predilections they possess to attack certain organs or tissues. Observation of the histopathologic reactions provides a basis for a tentative classification, according to the so-called tropisms or affinities for particular cells and tissues. A virus may thus be called neurotropic, dermatotropic, fibrotropic, hematotropic, lymphotropic or pneumotropic, or, conversely, it may be termed polyorganotropic. These special affinities for certain tissues and cells are not absolutely invariable, since they may be dissimilar in different animal species and in altered conditions of infection. This modification of the pathogenic properties is of practical value for the obtaining of vaccines. Then too the appearance of nuclear and cellular inclusions in many types of virus is interpreted as an expression of "cytotropism." Herzberg stressed the fact that in a number of virus diseases the inclusion bodies may be ascribed with certainty to a multiplication and accumulation of the agents within the cell. The circumstances of inclusion body formation, however, vary not only with different types of virus but also according to what cells are affected. The cytopathology of virus diseases requires on this account to be further investigated, especially with respect to the interrelation of intracellular development of virus and the specific cell reaction.

The third speaker was Carl Hegler, clinician. A satisfactory classification of virus disease is, he said, at present not

yet possible, either on the basis of clinical symptoms or according to the manner of transmission, the length of incubation, the amount of the virus, the outlook with regard to immunity or, finally, according to the tropism of a particular virus. Noteworthy in psittacosis is the comparative rarity of transmission from man to man; transmission to a third person has never been known to take place. Psittacosis does not confer complete immunity in every case; reinfections have been reported. Mention was made of the so-called Gordon biologic test for Hodgkin's disease: rabbits and guinea-pigs that are inoculated intracerebrally with a suspension of lymphadenomatous tissue present a meningo-encephalitis, which terminates fatally within ten to thirty days. Transmission from animal to animal does not take place; by filtration the virulence is considerably weakened but not destroyed. Various follow-up observations indicate the presence of a specific, living agent that in all probability is a virus. According to observations of influenza in swine, especially in young pigs, and studies of transmission of the disease, influenza in man may be regarded as a virus disease. The supposition is that the virus infection (by means of a serous inflammation perhaps) acts as a pace-maker for the bacteriologic agent. It seems virtually certain that a similar circumstance, the existence of an unknown virus which performs this pacemaker rôle, underlies scarlet fever, erysipelas and acute articular rheumatism. Whooping cough and dysentery too should perhaps be included in this group. At present there is no specific chemotherapeutic substance available for a single virus disease. Protective material contained in convalescent serum works partial successes in poliomyelitis, measles, scarlet fever and erysipelas. The ideal objectives remain twofold: active protective inoculation with weakened virus (as in variola, rabies and yellow fever) and the production of a virucidal serum.

VIENNA

(From Our Regular Correspondent)

April 21, 1937.

Studies of Evipan Narcosis

Dr. E. Trevani reported at the last session of the Vienna Physicians' Society on the use of evipan (the sodium salt of *n*-methyl-cyclohexenyl-methyl barbituric acid) to induce narcosis. In 2,500 cases in which this substance was utilized during the last five years the actual methods and the dosages were far from uniform. Clinical observations thus far indicate that it is not necessary to adhere rigidly to any single plan. However, the author found the following routine to be the best and most reliable: The patient is first prepared for narcosis by an injection of morphine. This is followed in from one to one and a half hours by a large initial dose of freshly prepared evipan, which the operator injects into the cubital vein of the opposite arm. Trevani varies the dosage according to the patient's age; patients aged from 20 to 30 receive 5 cc. at one injection, those between the ages of 30 and 45, 4 cc., those aged from 45 to 60, 3 cc. and patients over the age of 60, 1.5 cc. During the course of the operation an additional dose of from 0.5 to 3 cc. is injected as needed and on this account Trevani permits the injection needle to remain in the vein subsequent to the initial injection. As soon as the patient becomes unconscious, as indicated by a relaxation of the lower jaw, the intervention may be begun. Accordingly, all should be in readiness for the surgical procedure before the first injection is administered. Trevani does not estimate beforehand the exact amount of the solution necessary. He favors fractionated injections with large initial doses. Only rarely are patients encountered who show themselves resistant to the drug. In such cases one has to resort to ether narcosis. Since the decomposition of evipan takes place in the liver, any disease of that organ, even a secondary dysfunction, must be viewed as an absolute contraindication of this type of narcosis. Trevani mentions no other

contraindication. In the literature there are recorded eighty-six fatalities in a total of 4,000,000 evipan narcoses. Of these accidents, sixty occurred during the first two years, when the proper technic had not been developed. Overdosing was probably the responsible factor in a large majority of these deaths. On the basis of the foregoing observations, evipan narcosis may be assumed to be at least as safe as ether narcosis. Evipan narcosis offers the following advantages: It permits procedures of diathermy and cauterization to be carried on without danger of an explosion, it renders the use of narcotic masks, an inconvenience in surgical treatment of the throat and head, unnecessary, and it enables the surgeon to perform interventions on patients whose general condition would preclude the use of an ether or chloroform narcosis. Of even greater importance is the favorable psychic effect of the drug on anxious patients, who are often terrified when treated under local anesthesia, for injuries incurred in an accident, for example. Evipan should not be administered to ambulant patients, especially if the operation concerns the floor of the oral cavity, as the duration and profundity of the "after-sleep" cannot be estimated in advance. Patients to whom evipan has been administered must therefore be kept under observation.

In the discussion of Trevani's paper, many of the speakers called attention to the fact that the earlier mistrust of this method of narcosis is rapidly disappearing. In pediatric practice it has already been quite widely used in adenotomies and tonsillectomies, the dosage adjusted to the individual patient. About 1 cc. per minute is administered at both initial and subsequent injections, the amount varying from 1 to 5 cc. (the latter dosage has been administered to boys aged 14 years). Some surgeons have injected adults with total dosages as high as 18 or 20 cc. without apparent injury. In these cases coramin (a 25 per cent solution of pyridine betacarboxylic acid diethylamine) served as an efficient postoperative "awakener." From the standpoint of gynecologic practice, Kahr has found evipan narcosis chiefly useful in the preparation of elderly women patients for complete narcosis before irradiation with radium. An uncontrollable singultus is reported to have been permanently abolished by an injection of 4 cc. of evipan. It was generally conceded in the discussion that the states of motor excitation often observed during or subsequent to evipan narcosis should be attributed chiefly to the administration of the total dose at one injection. Many surgeons spoke favorably of a combination of evipan narcosis with subsequent local anesthesia. The individual surgeon also keeps in mind that in addition to evipan solutions, which have to be constantly prepared afresh there is the finished product "Eunarcon" (likewise a barbituric acid derivative), the fractionated use of which for short or complete narcosis has been quite successful.

Microscopic Representation of the Surfaces of Living Organs

For the observation of living mucosa with the greatest possible microscopic magnification, various instruments and systems of lenses have been employed, the cystoscope, the colposcope and others. Thus far, however, enlargements up to a magnification of only about 30 diameters have been practicable for the observation of surfaces, and the instruments did not permit inspection of individual cells or their constituents. Dr. Pick, who holds the chair of anatomy at Vienna, has recently devised a new apparatus, which he demonstrated before the Physicians' Society. By means of this device he is able to obtain magnifications of 800 diameters of mucous surfaces and of surgically exposed organs. The apparatus consists principally of a microscope tube with an ocular and an exchangeable objective that is enclosed from the outside by a glass cover. There is also a small lamp that provides illumination. The tube may be inserted in any natural bodily cavity or wound cavity and then pressed against the mural lining with more or less strength as preferred. For a

staining of any mucosa or tissue surface (or, more properly speaking, the constituents of the tissue) there are three fine tubules soldered into the tube itself and through these the staining solution is introduced. Illumination is derived from a pocket battery (dry cell). Precise adjustment of the apparatus from outside is readily practicable. Animal experimentation over a number of years has provided precise information on the stainability of living cells (and their constituents) as well as on the activity of pharmacologic substances. Thus it is possible to observe details that would not be discernible in a fixed sectional preparation. From use of this method of examining the surface or living tissue, results are forthcoming which apparently take the place of or provide an important supplement to exploratory excision. One may cautiously infer from the report that the new apparatus will make possible early diagnosis of alterations in tissue which is not permitted by the study of fixed sections. One can indeed, by Pick's method, examine the same area of tissue repeatedly without any damage. As staining substances, polychrome methylene blue (of the Unna type) and toluidine blue have proved best thus far. Neutral red and Nile blue are practically without value. Great interest was aroused by the demonstration pictures. Among the visualizations were the filiform papillae of the tongue, the normal portio vaginalis uteri at a magnification of 140 diameters, the vaginal wall in a mild descensus, and normal epithelium of the oral mucosa. Visualizations of normal mucosa are easily interpreted, but interpretation of diseased tissues by the new method is distinctly as yet a thing of the future to be achieved after further experimentation. This means a thorough testing of Pick's apparatus with the largest possible material.

SWITZERLAND

(From Our Regular Correspondent)

March 15, 1937.

Second International Medical Week in Switzerland

The second International Medical Week in Switzerland was held at Lucerne. Attendance was even larger than that at the first Medical Week. The ideal that underlies these gatherings is to assemble the leading scientists from different lands for a discussion of common problems. The Swiss government was again the sponsor, and the sessions were officially opened by its representative. The papers were submitted according to sections. Only the "high spots" of the program can here receive mention.

The first paper, entitled "Drugs That Paralyze the Sympathetic Nerves," was read by Prof. J. A. Gunn of Oxford. Prof. François Rathery of Paris then spoke on "Lipoid Nephrosis and Its Treatment." Prof. Robert Bing of Basle, neurologist, discussed "Somatic Factors in the Etiology of Psychogenic Symptoms." Bing reiterated the objections, which he has constantly raised during the last twenty-five years, to Babinski's theory of hysterical symptoms, a theory that was generally accepted at about the turn of the century. Whereas Babinski disallowed the influence of physiologic factors in the etiology of pathologic psychogenic states, Bing adduces proof that the pattern of a whole group of typical hysterical syndromes is not merely that of an idea inherent in the patient's psyche but instead represents a structural functional development quite like an organic symptom complex. The majority of psychiatrists are today also of the opinion that the mechanism which governs the somatic symptoms in psychoneuroses is to be strictly differentiated from the original motive. The theory upheld by Bing has come to be accepted by nearly all neurologists. According to this theory hysterical "escape into illness" comes about through channels that are bounded by anatomic, physiologic and embryologic factors.

The topics of the second day were "Circulation, Respiration and Tuberculosis." Prof. E. P. Pick, Viennese pharmacologist,

spoke first on "Self-Protection and Regulation in the Circulation." He discussed the great significance of the physical regulation of the heart, the diastolic filling and dilatation, the venous back flow and so on. He called attention to the significance of pericardial regulation in pathologic circumstances; to the blood deposits many times capable of causing occlusion through the blocking of a vein, especially the venous hepatic plexus, which receives a large quantity of blood and is able by diminution of the circulating blood stream to exercise a protective effect like that of a venesection. The second type of defense mechanisms, those which chiefly regulate the circulation through the nervous system, is frequently influenced by chemical stimuli. A third class of protective vascular reactions is based on the cooperation of stimulating and protective chemical substances with the nervous mechanism that regulates circulation and with the discharging reflexes in particular. Prof. W. R. Hess, Zurich physiologist, next discussed "Central Regulation of Circulation and Respiration." If demands are made on the circulatory and respiratory systems by energetic exercise, the sympathetic acts as regulator. The centers that regulate circulation and respiration are located in the medulla oblongata, but the thalamencephalon too exerts notable influence.

BRONCHOSPIROMETRY

Prof. H. C. Jacobaeus of Stockholm then spoke on the subject "Results in Bronchspirometry." Professor Jacobaeus devised the technic of bronchspirometry and he has performed about 200 such operations. By this procedure the size and function (vital capacity, oxygen intake, and carbon dioxide excretion per time unit) of each lung can be gaged. The method is of practical value, especially in bilateral pulmonary tuberculosis. By bronchspirometry the functioning of the diseased lungs can be determined and there is a degree of correspondence between these observations and the results of clinical and roentgen examination. The procedure furthermore makes possible exact evaluations of pulmonary function under pneumothorax and thoracoplasty. Professor von Gröer of Lwów next spoke on "Allergometry in Tuberculosis." Allergometry is a method by which the actual individual allergic condition of the organism in relation to certain allergens, tuberculin for example, can be determined in tuberculous patients. By a repetition of such determinations, corresponding alterations are established and therewith the course of that allergic path which the allergy will follow during infection is determined. Thus is provided a picture of the pathologic processes in tuberculosis which can be supplemented by clinical observations. The value of mathematically exact allergometric observation of tuberculosis lies in the fact that it permits a step by step, quantitative tracing of the pathologic factors in the disease. Consequently the procedure possesses a great importance for differential diagnosis and for prognosis.

Finally Prof. Phillip Schwartz of Istanbul spoke on "The Influence of Allergy on Tuberculosis." Professor Schwartz was able to determine the pathologic substratum of allergic reactions in phthisis. Types of the disease as it occurs in man can be artificially produced and brought under roentgenologic control. This artificially produced disease may be characterized by sudden manifestations as well as almost complete disappearance of tuberculous infiltration. Tuberculous infection elicits the same alterations in children as in adults. Six years after the onset of tuberculosis the immunobiologic effect may cease and a new infection characterized by precisely the same syndrome can be produced. The intra-alveolar accumulations, which are subject to complete dissolution, correspond to the clinically demonstrable infiltrations. This type of reaction is regarded as a result of hypersensitivity. The condition of the blood-cerebrospinal fluid barrier is decisive for the hematogenic dissemination of tuberculous infection. If it is open (as in early childhood, for example) a tuberculous meningitis may develop from hematogenic dissemination. The degree of sensi-

tivity within or without the blood-cerebrospinal fluid barrier can at the same time be distinguished.

The third day was given over to the topic "Metabolism, Hormone and Vitamin." Prof. Albert Szent-Györgyi of Szeged, Hungary, spoke on "Oxidation, Fermentation and Intermediate Metabolism." This scientist, who has become famous through his isolation and identification of vitamin C, has recently studied the mechanism of biologic oxidation. He has obtained an insight into the main process of lactic acid fermentation. Oxalic-acetic acid performs an important catalyzing function in oxidation by acting as an intermediate hydrogen acceptor. The nutritive material is reduced to fumarate by hydrogen and then reduced by the respiratory ferment, the cytochrome being reoxidized to oxalacetate. With respect to carbohydrate in the muscles, respiration and fermentation are identical activities except for this difference, that in fermentation the triose is oxidized by pyruvic acid and in respiration by oxalacetate. The product of oxidation is in either case pyruvic acid. By partial oxidation and polymerization this can be resynthesized into carbohydrate. The regulation of this oxidation is likewise the function of oxalacetate. If the catalytic function of the last named substance is disturbed, only an incomplete oxidation will take place, with decarboxylation to acetone. The study of the respiratory processes has already led to the discovery of many interesting substances (riboflavin, co-dehydroase, civamic acid and so on). Professor Szent-Györgyi, in collaboration with Professor St. Ruzsnyak, a clinician (also of Szeged University), has discovered a new substance in paprika and lemons which apparently is of a vitamin character and which has been called vitamin P. Chemically it is of the flavone group.

Prof. Edward Mellanby of London, then discussed "Degenerative Alterations of the Nervous System Due to Faulty Nutrition." Clinically it is manifest that the impairment of the nervous system in pellagra, convulsive ergotism and lathyrism is a result of defective nutrition. Subacute, funicular myelitis, too, seems to be closely related to the same cause. A disturbance of metabolism underlies all these conditions. Similar degenerative alterations in the nervous system with debilitation of nervous conduction but without inflammatory reaction or hyperplasia of neuroglia can be readily produced in young animals by specific changes in the nutriment. Insufficient intake of carotene and vitamin A, especially in conjunction with increased ingestion of cereals, will elicit typical degenerative nervous impairment with disturbance of coordination in the course of a few months. The parts first to be affected are the ascending nerves of the spinal cord and the afferent peripheral nerves. The addition of a few milligrams of carotene to the daily regimen prevents the manifestation of any degenerative alterations, inhibits the progress of already present impairment and has a definite curative influence on diseased peripheral nerves. The hypertrophy and inflammation of epithelium in xerophthalmia due to vitamin A deficiency are associated with degenerative changes in the cells of the gasserian ganglion and with the weakening of the afferent fibers of the fifth cranial nerve. Xerophthalmia is apparently a terminal result of an impairment of neurotrophic regulation and the same may be said of other types of epithelial hypertrophy and inflammation arising from vitamin A deficiency. Despite the great importance of vitamin B for the nervous system, it cannot be demonstrated experimentally that absence of this vitamin from the diet will be followed by any debilitation of the nerve fibers or of the peripheral fibers (such as is observable in beriberi). The next paper, by Prof. Ferdinand Sauerbruch of Berlin, dealt with "The Surgical Treatment of Certain Types of Endocrine Disorders." The speaker stressed how difficult it is to determine when operation is indicated. Therapeutic concepts that grope blindly still prevail to a great extent in endocrinology. Surgical intervention is most clearly indicated if pathologic and

anatomic glandular alterations can be established with certainty and if the symptoms of illness are in part or wholly traceable to glandular hyperfunction. The favorable results of surgery are more doubtful in hypofunctional states such as myxedema, tetany and Simmonds' disease. The chances of a successful organ transplantation are slight, although instances of success have been reported. Then there is the question of the removal of endocrine organs not in themselves the agents of pathologic change in order to influence certain disease conditions: for example, total extirpation of the thyroid in the treatment of angina pectoris, unilateral adrenalectomy to relieve hypertension in youthful patients, hypophysectomy in diabetes, and parathyroidectomy in generalized bone and joint disease. Sauerbruch discountenances all the foregoing interventions. He is equally skeptical with regard to the denervation of the adrenals and of attempts to ameliorate disease of the heart and lungs by surgical operations on the sympathetic and vagus.

Prof. Hans Guggisberg, Berne gynecologist, discussed "The Hormone Relationship Between Mother and Child." The placenta is, so to speak, the central organ of fetal metabolism and at the same time it gives off specific substances that influence both mother and fetus. The fetus itself forms but little hormone. Its glands of internal secretion become active only toward term. The final speaker of the day was Prof. L. K. Wolff of Utrecht, Netherlands, who discussed "Methods of Determining Vitamin Content in the Blood and Their Significance for the Evaluation of the State of Nutrition in Man." Wolff has undertaken extensive investigations of this problem at the Hygienic Institute, of which he is head. He was able to demonstrate the presence of vitamin A, vitamin C and riboflavin in the liver of about 1,000 cadavers. The vitamin A and vitamin C content in the diet and in the blood of unemployed persons was also reckoned; 25 per cent of these persons were found to be deficient in vitamin A and 10 per cent in vitamin C. The vitamin A and vitamin C values in the blood appeared good indexes of the supply in the entire organism. Vitamin C values in the blood and urine showed a constant ratio.

A special session was this time held at the University Clinic of Zurich. Prof. Felix R. Nager, the first speaker at this session, discussed "The Pathology of the Labyrinthine Capsule." He referred in particular to a biologic peculiarity of this bone and said that the pathogenesis of the typical disease of the capsule of the labyrinth, known as otosclerosis, has yet to be explained. It is not unlikely that precisely by means of comparative studies of labyrinthine disease an understanding of these conditions will be arrived at. Professor Clairmont, surgeon, gave a survey of "The Surgery of Calcium Oxide Metabolism," in which was included a description of its biology, its importance in inflammations and in the healing of wounds, the formation of concretion, in which the parathyroids play a part, and the circumstances of the healing of fractures in joint, muscle and bone diseases. The disturbances of calcium oxide metabolism as a result of parathyroid dysfunction are hyperthyroidism and hypothyroidism; special studies of these conditions have been made at the Zurich surgical clinic. The speaker next discussed the therapeutic values of parathyroidectomy and other surgical measures, besides treatment with parathyroid extract and a viosterol preparation. Administration of calcium is unimportant for the production of hemastasis. Prof. Ernst Albert Gäumann, botanist, described "Problems of Immunity in Plants." This lecture was noteworthy because of the general biologic implications of these questions. Professor Löffler then spoke on "The Pathogenesis of Bronchiectasis." He has learned from extensive investigation that it is certain sections (the bronchus of the left lobe inferioris, the bronchus of the right lobe superioris and the cardiac bronchus) of the bronchial tree and not the pulmonary lobes as such which determine the localization of bronchiectasis. The asymmetry of these areas is striking. The term bronchiectasis implies only

a dilatation; the purulent destruction of the pulmonary parenchyma with or without involvement of the bronchial wall is an abscess condition and not bronchiectasis. Cases of bronchiectasis are frequently combined with other lesions within the lungs (pulmonary cysts, for example) and in other organs. Bronchiectasis is often present in members of the same family. Although it is incontestable that bronchiectasis may be acquired, the congenital form of the disease must be thought of as a possible underlying condition in children who present histories of apparently unimportant colds and mild infections.

Two topics, "Pediatrics" and "Intoxications," were discussed on the fifth day. Professor Frontali of Padua reported his observations of "Hemorrhagic Diatheses in Childhood," emphasizing the significance of the capillaries. He also reviewed the concept of the endothelial constitution and the endothelial syndrome. Professor Péhu of Lyons read a comprehensive paper on "Bone Alterations and Blood Diseases in Childhood." Prof. Wolfgang Heubner of Berlin, spoke on "Chronic Intoxications," with particular reference to the essential nature and above all the significance of the allobiotic effect, an active constituent which continues after the toxin itself has been eliminated. The accumulation of digitalis, for example, is no longer to be explained as a storing of toxin but more reasonably as a typical chronic intoxication. Another important example is chronic arsine poisoning. In chronic intoxication from hydroquinone one can observe a wholly new type of toxic effect; namely, a reversible conversion of black hair into white in experiments performed with cats. Prof. Heinrich Zangger of Zurich spoke on "Intoxications from Volatile Poisons" and described the research he has done on this type of poisoning. Zangger's investigations are of great importance for social and industrial hygiene, as poisoning from volatile substances is a common occupational hazard. Prof. Maurice Roch of Geneva submitted a paper on "The Treatment of Mushroom Poisoning."

On the final day, the lecture of Prof. J. F. Fulton of Yale University had to be canceled, as Professor Fulton was unable to reach Lucerne on account of illness. Prof. Karl Henschen of Basle gave a comprehensive report of his experimental studies of "The Crystalline Structure of the Bones and Its Relation to the Physiology and Pathology of the Skeleton." He is especially interested in the spongy tissues, and his crystallographic observations provide a broader understanding of bone disease. The final speaker was Prof. Pierre Decker of Lausanne, who discussed the present state of the problem of post-operative disturbances. He took up his own study of blood conditions with particular reference to the chlorine content.

The convention was a pronounced success. Three evenings were set aside for informal general discussions and these were attended by large numbers and lasted till midnight. The entire program was again organized by the *Schweizerische medizinische Wochenschrift* of Basle and all arrangements were once more in the capable hands of Prof. Alfred Gigon. The next International Medical Week will be held at Interlaken from Aug. 29 to Sept. 4, 1937.

Marriages

CECIL COLLINS SWANN, Asheville, N. C., to Miss Dorothy Everett Spalding of Montclair, N. J., May 8.

THOMAS PECK BUTCHER, Emporia, Kan., to Miss Freda Allyn Dickey of Kiowa, May 22.

LOUIS CARROLL ROBERTS to Miss Jessie Speight Ward, both of Durham, N. C., April 30.

MYRON L. KENLER to Miss Muriel Nina Marcuse, both of Jamaica, N. Y., May 30.

RICHARD J. KRAEMER to Miss Helen V. Flynn, both of Providence, R. I., April 24.

Deaths

John Henry Wyckoff ☉ New York; University and Bellevue Hospital Medical College, New York, 1907; practiced in New York since 1910; dean and professor of medicine at his alma mater since 1932; member of the Association of American Physicians and the American Clinical and Climatological Association; fellow of the American College of Physicians; past president of the American Heart Association and the Association of American Medical Colleges; chairman of the heart committee and formerly vice president of the New York Tuberculosis and Health Association; member of the medical advisory committee of the advisory board on industrial education, member of the board of administrative consultants of the department of hospitals and of the technical advisory committee on district health administration; was cited "for conspicuous and exceptional service" in France during the World War; director of the third medical division and visiting physician to the Bellevue Hospital; consulting physician to St. Luke's Hospital, Newburgh, N. Y.; St. Joseph's Hospital, Yonkers, N. Y., Good Samaritan Hospital, Suffern, N. Y., Mount Vernon (N. Y.) Hospital, Presbyterian Hospital, Newark, N. J., St. Agnes' Hospital, White Plains, N. Y., St. John's Hospital, Long Island, N. Y., and Southside Hospital, Bayshore, and consulting cardiologist to St. Joseph's Hospital, Far Rockaway, N. Y.; lieutenant colonel in the medical reserve corps of the U. S. Army; trustee of the New York Academy of Medicine, a member of the Technical Board of the Milbank Memorial Fund, and a member of the board of trustees of Rutgers University; aged 55; died, June 1.

Alfred Adler, widely known psychiatrist of Vienna and New York, died, May 28, suddenly in Aberdeen, Scotland, of heart disease, aged 67. Dr. Adler was born in Vienna and received his medical degree at the Medizinische Fakultät der Universität Wien, Austria in 1895, where he also studied philosophy, sociology and psychology. He was the founder of the School of Individual Psychology in Vienna, and was visiting professor of medical psychology at the Long Island College of Medicine in Brooklyn. Among his works that have been translated into English are "The Practice and Theory of Individual Psychology," "Understanding Human Nature," "The Science of Living," "Pattern of Life," "The Neurotic Constitution," "What Life Should Mean to You" and "Study of Organ Inferiority and Its Psychical Compensation." Dr. Adler was the editor of *Internationale Zeitschrift für Individual Psychologie*, and in 1935 founded and was editor of a companion journal in English known as the *International Journal of Individual Psychology*, published in Chicago. At the time of his death, he had been lecturing on psychopathology at Aberdeen University and was to have delivered lectures in Edinburgh, Liverpool, Manchester and London.

Franklin M. Stephens, New York; University of Pennsylvania Department of Medicine, Philadelphia, 1885; member of the Medical Society of the State of New York and the American Otological Society; fellow of the American College of Surgeons; formerly professor of otology at the New York Polyclinic Medical School and Hospital; served in various capacities in the Robert Packer Hospital, Sayre, Pa., and the New York Eye and Ear Infirmary; aged 77; died, May 20, of pneumonia following the amputation of his leg for gangrene.

Reginald St. Elmo Murray, Gardner, Mass.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1913; member of the American Psychiatric Association, the American Association for the Advancement of Science, National Committee for Mental Hygiene and the American Roentgen Ray Society; served with the Canadian Army during the World War; formerly connected with the veterans administration; aged 50; died, March 13, in New York, following an operation for brain tumor.

John Monroe Fisher ☉ Philadelphia; Jefferson Medical College of Philadelphia, 1884; clinical professor of gynecology at his alma mater; fellow of the American College of Surgeons; president of the Aid Association of the Philadelphia County Medical Society; during the World War was a member of the medical advisory board and the medical service corps; on the staffs of the Jefferson Medical College Hospital and St. Agnes Hospital; aged 78; died, May 20.

Elmer Goodman Balsam ☉ Billings, Mont.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; past president of the Montana State Board of Health; secretary of the Medical Association of Montana; on the staffs

of the Billings Deaconess Hospital and St. Vincent's Hospital; aged 52; died suddenly, May 13, in a local hospital of an embolism following a minor knee injury.

John Morton McWharf, Ottawa, Kan.; University of Buffalo School of Medicine, 1868; member of the Kansas Medical Society; a member of the board of trustees of Ottawa University, 1897 to 1912, and vice president of the board, 1909 to 1912; formerly member of the state legislature; aged 94; died, March 20, in the Menorah Hospital, Kansas City, Mo., of carcinoma of the prostate.

Orra Edgar Patterson, Whiterocks, Utah; George Washington University School of Medicine, Washington, D. C., 1908; member of the Utah State Medical Association; served during the World War; for many years connected with the Indian Service; aged 57; died, March 18, in St. Mark's Hospital, Salt Lake City, of coronary occlusion and chronic gall-bladder disease.

Howard R. Keylor, Walla Walla, Wash.; College of Physicians and Surgeons, Baltimore, 1882; member and in 1895 vice president of the Washington State Medical Association; formerly member of the state board of medical examiners, acting as its secretary; for many years overseer of Whitman College; aged 76; died, March 27.

Frank Duane Mower, Newberry, S. C.; Tulane University of Louisiana Medical Department, New Orleans, 1907; member of the South Carolina Medical Association; past president of the Newberry County Medical Society; served during the World War; aged 57; died, March 20, of cardiovascular renal disease.

Archibald Duncan MacLaren, Port Huron, Mich.; Long Island College Hospital, Brooklyn, 1876; member of the Michigan State Medical Society; past president of St. Clair County Medical Society; police commissioner in 1900 and later health commissioner; aged 88; died, March 22, of myocarditis.

Albert Marsh, Newton, Mass.; Albany (N. Y.) Medical College, 1885; member of the Massachusetts Medical Society; assistant in obstetrics at his alma mater from 1886 to 1889 and instructor in obstetrics from 1889 to 1891; aged 77; died, March 17, of coronary thrombosis.

James John McLinden, Waterbury, Conn.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Connecticut State Medical Society; on the staffs of St. Mary's Hospital and the Waterbury Hospital; aged 60; died, March 16, of pneumonia.

Willard Lloyd McCormick, Bellevue, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1932; member of the Michigan State Medical Society; aged 32; died, March 20, in the Nichols Memorial Hospital, Battle Creek, of pneumonia.

Jefferson Davis, Toccoa, Ga.; Atlanta Medical College, 1884; member of the Medical Association of Georgia; past president of the Stephens County Medical Society; formerly state senator; served during the World War; aged 70; died, March 30.

William Tupper Elliott ☉ Helper, Utah; Northwestern University Medical School, Chicago, 1916; past president of the Carbon County Medical Society; served during the World War; county physician; aged 47; died, March 29, of coronary occlusion.

Frank Clark Myers, Spokane, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; formerly connected with the Indian Service; aged 83; was found dead, March 20, of myocarditis and arteriosclerosis.

William L. Fisher, Lake Charles, La.; Tulane University of Louisiana Medical Department, New Orleans, 1895; for many years parish coroner; on the staff of St. Patrick's Hospital; aged 71; died, March 7, of cerebral thrombosis.

Joseph Archambault, Fort Kent, Maine; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, Que., Canada, 1893; aged 58; died, March 31, of lobar pneumonia and influenza.

Arthur Joseph Parker ☉ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1920; fellow of the American College of Surgeons; on the staff of the Greenpoint Hospital; aged 40; died, March 19.

James Wilburn Macy, Wichita, Kan.; College of Medical Evangelists, Los Angeles, 1936; resident physician to the Sedgwick County Hospital; aged 40; died, March 7, as the result of injuries received in an automobile accident.

Reuben Zimmerman ☉ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1927; aged 33; on the staff of the Beth Israel Hospital, where he died, March 9, of rheumatic heart disease.

William Henry Connor ♂ Medical Inspector, Commander, U. S. Navy, retired, Coronado, Calif.; Harvard University Medical School, Boston, 1906; entered the navy in 1910 and retired in 1934; aged 56; died, March 21.

Rufus Alonzo Mooror, Georgiana, Ala.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the Medical Association of the State of Alabama; aged 68; died, March 5, in a hospital at Greenville.

Anna Johns Gesler, Narasaravupet Guntur District, Madras Presidency, India; Woman's Medical College of Pennsylvania, Philadelphia, 1926; a medical missionary; aged 41; died, March 13, of ectopic pregnancy.

John Alexander MacFadyen ♂ Worcester, Mass.; University of Vermont College of Medicine, Burlington, 1906; member of the American Urological Association; aged 64; died, March 30, of coronary thrombosis.

John Ramsey McElroy, Newcomerstown, Ohio; University of Wooster Medical Department, Cleveland, 1880; formerly postmaster and member of the board of education; aged 89; died, March 30, of bronchopneumonia.

Edward M. Fleenor, Johnson City, Tenn.; Chattanooga (Tenn.) Medical College, 1898; member of the Tennessee State Medical Association; aged 67; was killed, March 29, in an automobile accident near Augusta, Ga.

Michael Joseph Kelley ♂ Watertown, Mass.; University of the City of New York Medical Department, 1882; member of the school committee and board of health; aged 79; died, March 21, in West Palm Beach, Fla.

John Addy Sponagle, Middleton, N. S., Canada; Halifax Medical College, Halifax, N. S., 1883; served with the Canadian Army during the World War; for two terms mayor of Middleton; aged 76; died, February 19.

David Burt Willson Martin, Ingomar, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; aged 66; died, March 14, in St. John's General Hospital, Pittsburgh, of uremia and carcinoma of the prostate.

Willmer Armstrong Latimore, Pittsburgh; Eclectic Medical Institute, Cincinnati, 1897; aged 67; died, March 26, in the Homeopathic Hospital, of pneumococcal meningitis, following influenza and otitis media.

John Wicker Echols, McAlester, Okla.; Kentucky School of Medicine, 1894; formerly prison physician; for many years a member and at one time president of the board of education; aged 65; died, March 22.

Laird O'Neill Miller ♂ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1901; aged 61; on the staff of the Allegheny General Hospital, where he died, March 18, of bronchopneumonia.

Marshall Edward Chambers, Vinson, Okla.; University of Nashville (Tenn.) Medical Department, 1900; member of the Oklahoma State Medical Association; aged 67; died, March 30, of heart disease.

John Elzo Newland, Center Point, Iowa; Hahnemann Medical College and Hospital, Chicago, 1917; member of the Iowa State Medical Society; aged 43; died, March 13, of carcinoma of the lung.

Harry Levy, Birmingham, Ala.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the Medical Association of the State of Alabama; aged 57; died, March 23.

Benjamin Perry Matheson, Fort Myers, Fla.; Medical College of the State of South Carolina, Charleston, 1890; aged 73; died, March 31, in a hospital at Orlando, of nephritis and arthritis.

William Green Eggleston, Oakland, Calif.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; aged 77; died, March 29, of pneumonia.

John Leander Fierstone, Long Beach, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; aged 78; died, March 29, of arteriosclerosis and nephritis.

Rufus C. Jones, York, Ala.; Medical College Montezuma University, Bessemer, Ala., 1898; aged 78; died, March 15, in the South Highlands Infirmary, Birmingham, of pneumonia.

Ira Elton Neer, Miami, Fla.; St. Louis University School of Medicine, 1904; served during the World War; aged 61; died, March 30, in a local hospital, of cirrhosis of the liver.

Joseph Levering McCabe, Denver; Medical College of Virginia, Richmond, 1917; connected with the Veterans Administration; aged 44; died in March at Williams, Ariz.

Bertha Frederica Carl Frommell, Orlando, Fla.; Woman's Medical College of Pennsylvania, Philadelphia, 1896; aged 64; died, March 13, of coronary thrombosis.

Anna Law Avard, Scranton, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; aged 70; died suddenly, March 29, in Selma, N. C., of heart disease.

Herbert William David Garred, Charleston, W. Va.; University of Maryland School of Medicine, Baltimore, 1928; aged 34; died, March 12, of edema of the brain.

Milber Brink, Boyden, Iowa; Rush Medical College, Chicago, 1884; aged 86; died, March 4, at Estherville, of arteriosclerosis and carcinoma of the esophagus.

John Floyd Pruett ♂ San Francisco; Stanford University School of Medicine, San Francisco, 1914; served during the World War; aged 50; died, March 17.

Marion J. Nicholson, Stephens, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 74; died, March 20, of carcinoma of the rectum.

George Watson Fowler, Marengo, Ill.; College of Physicians and Surgeons of Chicago, 1891; aged 85; was found dead in his office, April 13.

Francis Frederick Malone, Los Angeles; Northwestern University Medical School, Chicago, 1904; aged 60; died, March 9, of coronary thrombosis.

Annette E. Lamphear ♂ New York; Woman's Medical College of the New York Infirmary for Women and Children, 1890; aged 72; died, March 27.

Charles Purdy Lindsley ♂ New Haven, Conn.; Yale University School of Medicine, New Haven, 1878; aged 82; died, March 29, of arteriosclerosis.

Matthew Ohaver, Millersburg, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902; aged 64; died suddenly, March 26.

Frederick S. Markel, Allenville, Mo.; Marion-Sims College of Medicine, St. Louis, 1892; aged 75; died suddenly, March 16, of heart disease.

William Walter Haven, Granite City, Ill.; Barnes Medical College, St. Louis, 1908 and 1909; aged 58; died, March 29, of cerebral hemorrhage.

James H. Erskine, Oakland, Calif.; Cleveland Homeopathic Medical College, 1898; aged 77; died, March 29, of chronic myocarditis.

George Willment Forester, Santa Ana, Calif.; Drake University Medical Department, Des Moines, Iowa, 1894; aged 73; died, March 28.

Thomas Popham McCullough, Peterborough, Ont., Canada; Trinity Medical College, Toronto, 1888; aged 77; died, March 18.

Alexander McLeod, Wroxeter, Ont.; Canada; McGill University Faculty of Medicine, Montreal, Que., 1914; aged 54; died, March 4.

Colon Beck, Clyde, Ohio; Eclectic Medical Institute, Cincinnati, 1897; aged 66; died, March 31, of uremia and cerebral hemorrhage.

Walter Jackson Coleman, Mineola, Texas; Medical College of Alabama, Mobile, 1888; aged 76; died, March 28, of myocarditis.

William Milton Mather, Tweed, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; aged 78; died, March 16.

J. Frank Harris, Sarasota, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1884; aged 80; died, March 28.

Ralph Robert Barker, Jasper, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1910; aged 50; died, March 20.

John Boggs Garrison, Hopewell, N. J.; New York Homeopathic Medical College, New York, 1882; aged 88; died, May 19.

Eber Whitney Gurley, Cleveland; Cleveland Homeopathic Medical College, 1898; aged 61; died, March 2, in Long Beach, Calif.

Ruce Marion Miller, Ivyton, Ky. (limited license in Kentucky, year unknown); aged 78; died suddenly, March 22.

Edward Lowell MacNamara, Syracuse, N. Y.; Syracuse University College of Medicine, 1897; aged 62; died, March 17.

Frank T. Eisenman, Los Angeles; Louisville (Ky.) Medical College, 1888; aged 75; died, March 12.

Bureau of Investigation

DR. H. WILL ELDERS

The Federal Trade Commission Orders Elders' Message to Yearning, Childless Females Modified

The Federal Trade Commission, under date of April 5, 1937, ordered H. Will Elders, his representatives, agents and employees, to cease and desist from representing either directly, indirectly or by implication, endorsements or testimonials of others, that "Dr. H. Will Elders' Filled Prescription for Women," "Dr. H. Will Elders' Private Prescription Sanitary Douche" and "Dr. Elders' Laxative Lozenges" constitute a cure, remedy or competent and adequate treatment for sterility in women.

According to the biographic files of the American Medical Association, H. Will Elders of St. Joseph, Mo., was born in 1874 and was graduated in 1894 from the American Medical College of St. Louis, a school which is now extinct. Elders was licensed in Missouri in 1894.



Typical advertisement of Elders' "sterility cure."

H. W. Elders has been in the mail order "patent medicine" business for a great many years. In 1911 Dr. Elders was advertising in the *Police Gazette* a "boon" for banishing all forms of the tobacco habit in from 72 to 120 hours. An analysis by the government chemists at that time showed that the "boon" consisted essentially of cocaine derivatives, strychnine and cinchona alkaloids. As the tablets were not a specific for the tobacco habit and as they did contain "injurious drugs or ingredients," the product was declared misbranded by the Food and Drug Administration in 1911. Elders pleaded guilty and was fined \$100 and costs.

In 1924 Dr. Elder was offering to childless women through paid advertisements in the daily press a free copy of a "new book" by Dr. H. Will Elders. In addition to the "free book," the doctor had a "wonderful" aid for "every woman who wants to live a normal, happy home life with little ones around her." This "wonderful" aid was "Steriltone." In February 1935 this product was declared by the Food and Drug Administration to be sold under fraudulent therapeutic claims. The composition, according to the government report, was essentially plant drug extracts, including hydrastis and a laxative, with ferrous sulfate and arsenic trioxide. Another Elders nostrum that was the subject of a Food and Drug Administration Notice of Judgment was the "Female Re-Lax Lozenges."

Elders advertises his "patent medicines" by means of magazines, newspapers and circular letters. Typical of the Elders advertising methods is a large, four-page sheet distributed to childless women in 1936 and bearing the heading: "A Message of Joy to Every Woman Who Yearns for a Baby or Two of Her Own!" Under the banner heading is a picture of a mother with an infant at the breast. There is also a likeness of Dr. H. Will Elders, seated at a desk with pen in hand, apparently about to dash off one of his treatises on "Common Causes of Functional Sterility."

Elders sends to inquiring women two booklets "in plain wrapper." In the booklets Elders claims to "discuss many important subjects relating to the female sex. . . . They tell how you too may combat your troubles as thousands of others have. . . ." In the circular letters Elders mixes romantic biography, descriptive of his practice "in the picturesque Ozark country," with paragraphs exalting Dr. Elders. "I long ago realized that few physicians were competent to successfully treat ailments peculiar to the so-called weaker sex, and I decided to make this my life work and study. . . ."

Most ingenious was the Elders explanation of sterility. "In general, I want to say to you that in my experience treating women for this condition, the majority of cases are due to the closing of the fallopian tubes . . . blowing air or gas through them does not reach the ovaries and therefore could not get at the cause."

It is safe to say that few physicians would agree with the Elders idea of competence as expressed in Dr. H. Will Elders' Filled Prescription for Women. The quantitative formula per tablet, as given in the Federal Trade Commission's Docket No. 2673, is as follows:

Powdered Viburnum Opulus.....	1/2 grain
Powdered Gentian.....	1 grain
Powdered Ferrous Sulfate—Dried.....	1 grain
Arsenous Acid.....	1/60 grain
P. E. Cascara Sagrada.....	1/2 grain
Powdered Hydrastis.....	1 grain
Powdered Aletris.....	1 grain
Powdered Caulophyllum.....	1 1/2 grain
Powdered Pulsatilla.....	1 grain
Powdered Cimicifuga.....	1 grain
Desiccated Corpus Lutea (Sow).....	1/2 grain

The quantitative formula per tablet for Dr. Elders' Laxative Lozenges is given as:

Cascarin.....	1/4 grain
Aloin.....	1/4 grain
Podophyllum Resin (U. S. P.).....	1/6 grain
Strychnine Sulfate.....	1/60 grain
Ext. Belladonna Leaves.....	1/6 grain
Oleoresin Ginger.....	1/8 minim

The formula for Dr. H. Will Elders' Private Prescription Sanitary Douche, based on a quantity of 101 pounds, is as follows:

Borate Tetra.....	100 lbs.
Chloramine-T.....	500 grms.
Menthol Crystals.....	260 grs.

The Federal Trade Commission further points out that Elders' medicines, "when used either together or singly, do not constitute a cure, remedy or competent and adequate treatment for sterility in women, nor for diseased conditions which are most frequently the cause of sterility. In cases of sterility due to disease or to anatomical abnormalities, such medicines would not be effective in removing the condition. Neither do said medicines used together or singly constitute a cure, remedy or competent and adequate treatment for female diseases or for leukorrhea or for delayed, suppressed or painful menstruation, nor are they effective in the treatment of such conditions and diseases where the same are caused by many diseased conditions. Representations to the contrary are neither accurate nor limited enough to express the true therapeutic effects of said medicines. . . . The representations of respondent, as aforesaid, have had and do have the tendency and capacity to confuse, mislead and deceive members of the public. . . ."

The Federal Trade Commission has ordered the respondent to file with the commission within sixty days a report in writing, setting forth in detail the manner and form in which he has complied with the cease and desist order. It will be interesting to note his future messages.

Correspondence

RELATION OF AMERICAN MEDICAL ASSOCIATION TO CERTIFICATION OF SPECIALISTS

To the Editor:—Dr. Paul C. Bucy of the University of Chicago has written to THE JOURNAL (May 29) criticizing certain portions of the address of Dr. C. Gordon Heyd on the "Relation of American Medical Association to Certification of Specialists" (THE JOURNAL, March 27, p. 1017).

Dr. Heyd, in spite of his multitudinous duties as President of the American Medical Association, informed himself accurately by correspondence and personal interviews about his subject before he prepared this address. Dr. Bucy, on the other hand, has made no such effort. No communication or enquiry has been received from him at the office of the Advisory Board for Medical Specialties (the coordinating board of all the special certifying boards), nor have the secretaries of the three boards specifically and critically referred to by him been asked whether the sweeping deductions he has drawn are based on fact.

For example, in speaking of multiple certification, or the certification of the same man by more than one board, he assumes that this is not permitted and argues at length that the American Boards of Ophthalmology and of Otolaryngology, which he mentions, ought to be willing to certify in both of these related specialties any man who can qualify. If he had enquired he would have learned that many such men now hold certificates from both of these boards and that others qualified may obtain them in the future. Moreover, it happens that a diplomate of the American Board of Obstetrics and Gynecology, a gynecologist who is an authority on radiation treatment of cancer, is even a member of the American Board of Radiology, serving as one of its examiners.

The sense of Dr. Heyd's remarks on this subject is that as a general procedure multiple certification is undesirable. A man cannot be a "specialist" in too many lines of work. Action taken on this matter at a meeting of the Advisory Board for Medical Specialties was that as a general principle multiple certification was "not viewed with favor." It has never been prohibited and is always left to the individual boards to decide whether the closeness of relationship in any given instance warrants permitting it.

Dr. Bucy speaks of the requirement by some boards that men to be certified must limit their practice to their specialty. He postulates from this that an individual certified as a gastro-enterologist would not be permitted to treat a man with coronary disease who came to him as a sufferer from indigestion.

In the first place, there is no board in gastro-enterology. Men specializing in this work are to be certified basically by the American Board of Internal Medicine with a special examination and certificate issued by that board in gastro-enterology. Dr. Bucy's assumption that such a man would be restricted in his activities is entirely groundless. It is probable that neurosurgery (Dr. Bucy's specialty) will come under a similar plan of action by the recently created American Board of Surgery.

He says further that the purpose of these boards "must be to certify that a given individual is a competent practitioner in a special field." In a broad way this might be desirable, but for the present at least the purpose of these boards is to determine the competence of men who claim to be specialists, not merely practitioners, in these several fields. The public has suffered too long from too many self-styled specialists, and these boards are trying to make available the facts regarding those who are qualified for the claims they may have been making. Later, it may perhaps be advisable to undertake to distinguish and list those who have made themselves "proficient"

to a greater degree than usual but who are not actually specializing in the various branches. Clearly the time is not ripe for this as yet.

Moreover, certain of the boards do not, for definite reasons, require a rigid limitation of work to their specialty, but Dr. Bucy does not seem to be aware of this.

He "differs sharply" with Dr. Heyd on the point that "research work should not be a part of the examination of a candidate for examination." I think his reaction is again due to a misunderstanding of intent. Creditable research work and publications count high in a candidate's favor in the eyes of the boards. Nevertheless many, many well qualified specialists have published little or nothing. They should not be and are not excluded on this account.

Finally, to clinch his argument, after being given an opportunity by THE JOURNAL to review Dr. Heyd's reply, he quotes from the booklet of the American Board of Obstetrics and Gynecology, which does require its candidates and diplomates to limit their work to obstetrics and gynecology. However, he does not quote the broad latitude of practice allowed in this board's definition of the specialty. Nevertheless, it is quite correct, as he says, that this board has ruled "physicians who accept male patients in their . . . practice . . . cannot be regarded as specialists in obstetrics and gynecology." There is an American Board of Surgery for these men if they are qualified, but there are other strong reasons for this rigid attitude.

The criticism is constantly being hurled at the medical profession of this country that our maternal mortality rates are much too high. In the survey of the New York Academy of Medicine it was found that fatal cesarean sections had been done by men listing themselves in the local medical directory of New York County as being "specialists" in proctology, laryngology, roentgenology and, in several instances, general surgery. It is my recollection that one of these fatal operations was performed by an "ophthalmologist."

What sort of specialists are these! Obviously, they are of the type best described as "specializing in the skin and all of its contents"! Can this board hope to correct such a situation if it does not clean house itself, by requiring its diplomates not to do general surgery? It is particularly unnecessary for these men to accept male patients. More important still, they are usually not qualified to undertake, for example, thyroid surgery, as does one gynecologist whom I know.

Obstetrics and gynecology, as a specialty, is certainly a broad enough field to occupy all the attention of any but a superman, if he is to do the best work possible in this specialty.

Until these men demonstrate that they recognize their limitations, always for the benefit of the patient, by not invading other general fields, how can it be expected that others, less qualified in this important specialty, will cease their activities such as were disclosed by the survey quoted?

PAUL TITUS, M.D., Pittsburgh.

Secretary of the Advisory Board for Medical Specialties, and Secretary of the American Board of Obstetrics and Gynecology.

MORTALITY FROM CESAREAN SECTION

To the Editor:—I am in no way qualified to judge whether Dr. D. L. Smith (THE JOURNAL, April 17) is right or wrong in his contention that low cervical cesarean section is preferable to the classic operation; but any one accustomed to weighing evidence may quarrel with his statement of the case. His table 2, for example, reports a total of three deaths out of 100 patients subjected to the low cervical operation and eight deaths out of 180 treated in the classic manner. Application of an elementary test (chi square for a fourfold table) shows that the apparent difference between these mortality ratios

might very easily arise by chance alone. The apparent improvement, in the same table, from 1934 to 1935 is equally devoid of significance. Nor do I think one should speak of a 33½ per cent mortality in a group of six cases and compare this with other mortality rates. I am glad to acknowledge that Dr. Smith's table 5 is, in itself, convincing; but it is surely not unreasonable to ask that contributors of wholly statistical articles should display some knowledge of the elementary principles of statistics.

DAVID L. THOMSON, PH.D., Montreal.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

EFFECTS OF TEAR GAS

To the Editor:—I have a case about which I would appreciate your giving me what information you have. It deals with tear gas, and as we have but little contact with tear gas in this country, and I have no recent literature on it, I am unable to form a definite opinion on the matter. The case is as follows: Mr. A was sprayed with tear gas, whether in a closed room or in the open air I do not know. He was taken to a hotel and placed in one of the rooms. In getting him into the room there was some scuffling, and in this scuffling Mr. B brushed his face across Mr. A's sweater. Mr. B stated that he felt moisture on Mr. A's sweater, which was transferred to his face, and that he immediately began sneezing and his eyes began to water. Nine days later Mr. B consulted a physician and stated that he was still having considerable irritation in the nose. Examination by the physician apparently made him feel that Mr. B had a sinusitis and otitis media, as it was these conditions which he reported to the industrial accident commission, the claim being that in the performance of Mr. B's work he came in contact with an irritating toxic substance, which produced the sinusitis and otitis media. The questions I would appreciate your answering are: 1. Would the concentration of tear gas on Mr. A's sweater be sufficient to produce an irritation of Mr. B's nose and eyes, in view of the fact that Mr. B's face only brushed across Mr. A's sweater, and bearing in mind that at no time was Mr. B in the room filled with tear gas, nor was tear gas shot at him? 2. Granted that Mr. B could have had an immediate irritation from the tear gas, would such a slight contact with the tear gas cause a continued irritation for nine days? 3. Is it possible for tear gas, however concentrated, to produce sinusitis and otitis media? 4. Could the mild concentration of tear gas that Mr. B may have gotten be able to produce a sinusitis and otitis media? Frankly, the whole claim seems to me to be so far fetched as to be fantastic. It does not appear reasonable to my mind that an otitis media could develop from tear gas, and it appears highly improbable that a sinusitis could be developed from tear gas. In both instances, however concentrated, and all the more so in this particular case when, if the tear gas did have any effect on Mr. B it would of necessity through the contact have been mild, I even doubt that he could reasonably have had a mild nasal irritation. However, as I have had no experience with tear gas and I have no authoritative literature, I would appreciate your opinion and also any literature which would throw light on this particular case. ROBERT M. COATS, M.D., Weiser, Idaho.

ANSWER.—This query fails to mention the particular type of lacrimatory gas involved. In this country it is believed that police departments rely chiefly on the tear producing agent chloroacetophenone. There are many other lacrimators, such as benzyl bromide, xylol bromide, benzyl chloride, bromo-ketone, di-bromo-ketone, bromo-acetone, dibromo-acetone, bromoacetophenone, chloro-acetone, dichloromethyl ester, chlorosulfonic acid, methylichlorosulfonate, phenyl-carbarylamine chloride, acrolein, stannic chloride, bromoacetic ether and iodoacetic ether. Because of the widespread availability of chloroacetophenone, it is reasonable to believe that this is the substance employed in the present instance. Following are references on the chemistry and toxicology of this substance: Gibson, A., *Mil. Surgeon* 67:195 (Aug.) 1930; McNally, W. D., *J. A. M. A.* 98:45 (Jan. 2) 1932; Tear Gas—Chloroacetophenone, Query and Minor Note, *ibid.* p. 1105 (March 26) 1932; Muntz, Otto, *Leitfaden der Pathologie und Therapie der Kampfstoferkrankungen*, Leipzig: Georg Thieme, 1935; Hanslian, Rudolf, editor, *Der chemische Krieg*, Vol. I, Berlin, E. S. Mittler & Sohn, 1937.

The formula of chloroacetophenone is $\text{C}_6\text{H}_5\text{COCH}_2\text{Cl}$. It is a gray or white crystalline solid with an aromatic odor similar to that of locust blossoms. It is used in gun shells, the Stokes mortar, candles, grenades, air bombs and as a spray when dissolved in organic solvents such as ethyl acetate, or a mixture of benzene and carbon tetrachloride. It may also be mixed

with smokeless powder and magnesium oxide; on burning, this mixture gives off finely divided chloroacetophenone as a white, blue-gray or colorless vapor. It is insoluble in water and has no action on metals. It is neutralized or destroyed by hot sodium carbonate solution and may be removed from the skin with a solution of sodium sulfite in 50 per cent alcohol or with plain alcohol or glycerin. McNally recommends a 0.4 per cent solution of sodium sulfite in a mixture of glycerin 75 per cent and water 25 per cent for use in the eyes. Boric acid solution may also be employed in the eyes although chloroacetophenone is not soluble in it. Alkaline eye ointments have been recommended in German reports, but formulas are not given.

Chloroacetophenone is irritating to the eyes, exposed mucous membranes and skin in very small quantities. Lacrimation begins with a concentration of 0.3 to 0.5 mg. per cubic meter of air. Irritation of the nose occurs with 1 mg. per cubic meter; with 2 mg. per cubic meter use of the eyes is impossible owing to pain and flow of tears. At the latter concentration, irritation of the skin of the face and of the pharynx occurs. The highest concentration which a normal man can tolerate for one minute is 4 to 5 mg. per cubic meter. It is apparent that with a concentration of only a few milligrams in 1,000,000 cubic centimeters of air, the amount necessary to cause severe irritation of eyes, nose, pharynx and skin must be very small indeed, probably not more than a few thousandths of a milligram. As chloroacetophenone is a solid, considerable quantities might remain impregnated in and spread on clothing, particularly if the material were sprayed in solution. A person who brushed his face against cloth so impregnated could easily pick up enough chloroacetophenone to cause severe irritation; and as expressed in a Query and Minor Note in THE JOURNAL already cited, "It is reasonable to believe that enough irritation of the eyes or throat may be produced by tear gases to pave the way for secondary bacterial invasion, with ensuing pharyngitis and conjunctivitis on occasion." The possibility of the production of sinusitis and otitis media secondary to irritation by chloroacetophenone is not at all "fantastic." Chloroacetophenone is not the practically harmless substance it is commonly reputed to be. With direct contact it can cause permanent corneal opacity and resultant blindness, as in one of the cases reported by McNally. It frequently causes more than temporary interference with vision which may take several days to clear up.

PNEUMOTHORAX IN MINIMAL TUBERCULOSIS

To the Editor:—Have you any statistics to show which patients with definitely diagnosed minimal tuberculosis (pulmonary) do better; if first placed on bed rest treatment, or at once started off on artificial pneumothorax? What is the consensus with regard to these minimal cases of pulmonary tuberculosis? Has it swung away from bed rest first and gone to the more radical treatment with artificial pneumothorax treatment or is the latter not considered radical any more? Kindly also state what the indications are for thoracoplasty? Kindly omit name and address.

M.D., Massachusetts.

ANSWER.—Until recent years only a small percentage of patients with pulmonary disease had their lesions detected while in the minimal stage. Moreover, artificial pneumothorax was not thought to be indicated except in the presence of cavities, extensive disease and hemorrhage. Therefore not many reports presenting results of artificial pneumothorax in minimal pulmonary tuberculosis have been made. There are still a number of tuberculosis workers who have not employed artificial pneumothorax in the treatment of minimal disease and who strongly oppose its use. There are others who have employed it and after a sufficient period of observation of their patients strongly recommend it for all progressive minimal lesions. Turner and Collins of Chicago (*Ann. Rev. Tuberc.*, December 1936) made observations on patients with minimal pulmonary tuberculosis treated by various methods and found "that the watchful waiting policy for evidence of progression proved costly and dangerous in several cases, and even fatal in a few. Therefore, we advocate immediate induction of artificial pneumothorax in definitely diagnosed minimal cases." These authors have not seen a "minimal pneumothorax case show progression of the disease in the treated lung or metastasis to a new lobe or exhibit an exacerbation of a previously existing lesion in the contralateral lung." After a careful study of 139 patients with minimal disease treated by various methods, they conclude: "The operative risk in minimal cases is negligible. Percentage of cases with free space is high in minimal cases. The high percentage of effective collapses in minimal pneumothorax cases is a guaranty of good results. Complications were so infrequent that they should not constitute a deterrent for the use of pneumothorax in early cases. The conversion of sputum in positive minimal cases is prompt and certain under pneumothorax treatment. The conversion time, hospital stay and total

disability were definitely decreased by the use of pneumothorax. Pregnancy in minimal cases is well tolerated if supported by pneumothorax. (Four of the cases receiving pneumothorax carried a pregnancy to term without any apparent ill effects.) The conservative treatment of minimal pulmonary tuberculosis requires the early induction of artificial pneumothorax. We believe that the existence of a minimal tuberculous lesion in an individual of "teen" age is an absolute indication for artificial pneumothorax without delay."

Myers and Levine (*Am. Rev. Tuberc.* 31:518 [May] 1935) reported fifty-two cases of pulmonary tuberculosis in which the treatment was instituted while the disease was minimal. In these patients, however, the disease was determined to be definitely progressive before treatment was instituted. Of the fifty-two patients, only three were found to have adhesions sufficiently extensive to interfere with the collapse. At the time the report was made, forty-two of the group were working or ready to work. Four had died, one of whom had miliary tuberculosis, another multiple lesions in various parts of the body, and the other two died of nontuberculous conditions. The results in this group of cases were "superior to those in other groups under our care, that had artificial pneumothorax instituted after the disease had become moderately or far advanced. They are also superior to those of other groups of minimal cases which we have observed on bed-rest treatment alone."

Since many of the reports on artificial pneumothorax therapy have come from institutions where patients have been given long periods of bed rest in addition to collapse therapy, it has been difficult to determine how much credit for the success obtained should be given bed rest and how much to collapse therapy. However, there are now groups of cases on record in which treatment was limited to sanatorium treatment or strict bed rest without the use of collapse therapy. For example, Wherrett (*Am. Rev. Tuberc.* 31:62 [Jan.] 1935) observed for periods of from one to thirteen years 291 patients with minimal tuberculosis, who had only sanatorium treatment. In 28 per cent the results were not good. Pope (*New England J. Med.* 209:765 [Oct. 19] 1933) has reported thirty-four cases in the "teen" age period in which the patients had minimal disease when admitted to the sanatorium. From four to seven years later, 40 per cent were dead.

Thus, it appears that artificial pneumothorax has a definite place in the treatment of progressive, minimal pulmonary tuberculosis. While the patient is lying in bed apparently doing well from the standpoint of absence of symptoms or even gaining in weight, the lesion may progress. Moreover, lesions may appear in the previously good lung while the patient is on strict bed rest. Since collapse of the diseased area definitely inhibits the proliferation of tubercle bacilli and stimulates the formation of scar tissue, it seems logical to bring about these two desired results at the earliest possible moment. Moreover, if the lesion has not yet broken down so that tubercle bacilli are being eliminated, one may prevent this occurrence. On the other hand, if the lesion has already broken down and tubercle bacilli are present in the sputum, artificial pneumothorax in most minimal cases quickly closes the lesion, so that the sputum becomes negative and then completely disappears. Obviously, it is better to treat a tuberculous process by artificial pneumothorax before cavities and adhesions have formed, before large volumes of lung tissue have been involved, and before the patient's general health has become undermined, than to wait until these conditions have developed.

Artificial pneumothorax should not be considered a radical procedure. Indeed, it has become a standard form of treatment. It is not as radical or as drastic as a long period of strict bed rest which takes the patient out of all activities of life, frequently causes him to lose his position, opportunities for promotion or even his entire possessions, and returns him to the world in a mental state that is more difficult to treat than the original disease. The patient with advanced bilateral tuberculosis must be treated in this drastic manner largely because of the contagiousness of his disease. He and society must suffer the consequences, but this is not true of the patient with minimal tuberculosis. Therefore the present campaign which emphasizes the detection of minimal tuberculosis in the lungs of apparently healthy persons and immediate treatment of all such lesions found to be progressive offers the only practical solution of tuberculosis control in the human family.

The patients for whom extrapleural thoracoplasty are now indicated are as follows: 1. Those with moderately or far advanced disease of the proliferative type in one lung who have been observed over a considerable period and for whom attempts at artificial pneumothorax have repeatedly failed, that is, the entire pleural space has been obliterated, frequently give histories of having had pleurisy with effusion at some previous

time. Moreover, temporary interruption of the phrenic nerve should have been attempted and found wanting. 2. When the disease is of the exudative type and the patient is somewhat toxic, one should depend on bed rest and as much immobilization as possible through temporary interruption of the phrenic nerve until the toxemia disappears and the lesion appears to have stopped progressing before attempting extrapleural thoracoplasty. This group includes also patients with less extensive disease but with conditions otherwise the same as the foregoing but who have recurrent pulmonary hemorrhages or who have positive sputum. 3. For patients with disease similar in extent and nature to the foregoing and in whom partial artificial pneumothorax has been accomplished, but after a period of observation it is evident that adhesions will prevent adequate collapse of the diseased lung or that the walls of cavities are so thick and the fibrous tissue in the lesions so dense that pneumothorax cannot result in satisfactory collapse, it is futile to continue with artificial pneumothorax. This procedure should be discontinued and extrapleural thoracoplasty performed at once. 4. Fourth are patients who have been treated successfully by artificial pneumothorax for a time but who have voluntarily given up the treatment before the disease is well under control so that adhesions have formed, or patients who have lost the pleural space through the formation of oblitative adhesions and the disease has become reactivated or cavities have reopened. 5. For patients who have had an extensively diseased lung collapsed by artificial pneumothorax which fails to reexpand when the treatment is terminated, while constituting a very small percentage of patients treated by artificial pneumothorax, it is advisable to continue their refills or perform extrapleural thoracoplasty. 6. Sixth are patients who have been on artificial pneumothorax treatment but have had pleural pulmonary fistulas develop resulting in mixed infection empyemas. Tuberculous empyemas without the presence of fistulas usually do not require surgery, since they may be treated successfully by other methods, such as oleothorax. However, there is the occasional obstinate case in which thoracoplasty must be performed. 7. Some patients who have bilateral apical lesions with cavities, with the upper portion of the lung adherent to the chest wall, may now be treated successfully by partial bilateral thoracoplasty, to close the cavities and adequately collapse the diseased areas.

TREATMENT OF STRONGYLOIDES INFESTATION

To the Editor:—A man, aged 40, who came to me recently, was put in the hospital for an emergency appendectomy four months ago. After the routine laboratory work was done it was found that he had an infestation of *Strongyloides intestinalis*. He dates his present illness to beginning about seven years ago, when he had indefinite pains over the abdomen. Increasing constipation occurred, together with hemorrhoids and a fistula. During this time he also developed a prostatic discharge, which was persistent and annoying. Smears and cultures done by several good urologists were negative. In the past four months he has had three courses of hexylresorcinol crystals, a course of santalin, and numerous other antihelminthics. Nov. 14, 1936, the stools were still strongly positive. Since the treatment was begun, the constipation has cleared up and the prostatic discharge has entirely stopped. The patient feels better physically but is extremely restless and is unable to sleep. Please advise me whether there is some new drug which would clear up this stubborn infestation. Any suggestions you have to offer will be greatly appreciated. Please omit name.

M.D., Florida.

ANSWER.—The peculiar life cycle of *Strongyloides* and its ability to perpetuate itself in the human body (Fülleborn) make it extremely difficult to eradicate. The worms are deeply embedded in the mucosa, although some are near the surface or free in the lumen of the upper small intestine. Most antihelminthic drugs are useless for the embedded worms, just as in the case of *Trichina*. It is probable that pathogenicity is proportional to mass of infection and general condition of the host. In the great majority of infested patients, *Strongyloides* does not produce symptoms. In the case under discussion, it is doubtful whether the worm had any relation to the symptomatology or pathologic changes. It is possible that the hemorrhoids and the anal condition may have resulted from anal invasion of developing larvae. If such was the case, eosinophilia and allergic bronchial or other symptoms might have been associated. The matter could have been settled only by examination of removed hemorrhoids or scrapings of fistulous tracts for larvae. In the absence of diarrhea, one must assume that otherwise the worms played no part in the pathologic condition and symptoms described.

The usual drugs are quite without effect on *Strongyloides* and the infestation has usually been considered incurable. If it should seem wise to treat the patient further for *Strongylus*, it would be advisable to use De Langen's combined method, giving antimony and potassium tartrate and gentian violet

simultaneously. Gentian violet can be administered in doses of from 0.06 to 0.2 Gm. by mouth in pills freshly coated with melted phenyl salicylate three times daily for three to five days in each course. Antimony and potassium tartrate is given intravenously in 2 per cent solution in double distilled water, with care to have the solution perfectly clear. Injections should start with 1 cc. and be increased progressively to a maximum of 6 cc. and a total of twenty injections, given two or three times weekly. The urine should be watched and the treatment discontinued temporarily in case of reaction. The commoner reactions are shown by aching general pains, nausea and vomiting, or a cough. The entire combined procedure may be repeated after a few weeks intermission.

CHRONIC LUMBOSACRAL OR SACRO-ILIAC SPRAINS

To the Editor:—A married woman, aged 30, complains of lower back pain and stiffness in the region of the right sacro-iliac joint, radiating down the right leg to the ankle. There is no other joint pain or fever. The symptoms are of a year's duration and began shortly after a slight strain of the back due to a fall. General physical and serologic examinations are negative except for a deviated septum, large buried tonsils and a posterior drip. Reports of three orthopedic consultants are as follows: 1. Sacro-iliac sprain, x-ray examinations negative. 2. Tilt of the lumbar spine to the left, x-ray examination showing sacralization of the last lumbar vertebra with tilt of the fifth lumbar vertebra to the left. Impression is sciatic scoliosis secondary to a congenital anomaly, with osteo-arthritis of the lower part of the spine and the sacro-iliac joints. Immobilization advised in a double plaster spica followed by a spinal brace. If not relieved, a spinal fusion. 3. A lumbosacral angle of 28 degrees. The fifth lumbar vertebra displaced anteriorly on the first sacral. Tenderness over the right posterior iliac spine. Ober's test 1 plus bilateral. Impression is spondylolisthesis and a spine fusion, fourth lumbar to first sacral, advised: Please suggest further steps in diagnosis and treatment.

B. E. LANDESS, M.D., Ozone Park, N. Y.

ANSWER.—The symptom complex of chronic sciatic nerve pain associated with pain in the lower part of the back, coming on simultaneously to or immediately following an injury in which the back was subjected to acute or sudden strain, is compatible with a diagnosis of chronic lumbosacral or sacro-iliac sprain. The absence of any changes in the bones at the sacro-iliac joint that could be demonstrated in the roentgenogram, and absence of disability in the joints of the extremities, tend to rule out arthritis as an etiologic factor.

Associated with unilateral sacro-iliac pain there is commonly a protective muscle spasm, particularly of the sacrospinalis muscles, which produces a functional scoliosis such as that described for this patient. The sacralization of the last lumbar vertebra, described by one of the consultants, may have been a predisposing factor. Since only one of the three consultants diagnosed displacement of the fifth lumbar vertebra anteriorly on the first sacral, the definite presence of spondylolisthesis would seem not to have been adequately established. This point should certainly be settled, if necessary by taking additional lateral roentgenograms. The slightest rotation of the spine on taking the lateral film may cause a distortion of the shadows of the fifth lumbar and first sacral vertebrae, producing an erroneous impression of displacement. It would be necessary to demonstrate in the roentgenogram a defect in one or more of the pedicles in order to justify the diagnosis. Without having the opportunity of viewing the roentgenograms or of examining the patient to attempt to localize the lesion definitely, one would be presumptuous to advance any opinion. Before treatment is undertaken, organic neurologic lesions should be carefully ruled out.

Conservative measures of treatment should be carried out before operation is considered. Since Ober's test was reported as 1 plus bilateral, it would be advisable that the patient be given gas anesthesia and that both legs be manipulated according to the technic of the late Dr. William Baer. A double plaster spica cast should then be applied, including both legs and the feet and reaching well above the rib region on the trunk. A large window can be safely made over the abdomen. This adds to the comfort of the patient and prevents to some extent the abdominal distention which is so common following application of casts of this type. Immobilization in this cast should be continued for at least three weeks, and preferably for six weeks. A brace should be worn for at least six months if the patient remains free from symptoms. If, however, the patient continues to have pain after the second week in the plaster spica or if the pain returns later while she is wearing the back brace, a fusion operation should be considered.

Physical therapy, including exercises for strengthening the abdominal muscles and the gluteal muscles, should be used after removal of the cast. Permanent cures have been reported in from 75 to 90 per cent of all patients so treated.

IDIOSYNCRASY AND ASTHMA

To the Editor:—Kindly discuss the possibility of an idiosyncrasy to the medication in the following case: A woman, aged 74, weighing about 100 pounds (45 Kg.), always in good health except for symptoms of asthma to a moderate degree during the past several years, developed a slight cold. The cold had been present for two or three days, but the patient had been up and about her regular household duties. On the last day she had a cough and it was decided by members of the household that a medicine for the cough should be obtained. A bottle of cheracol was purchased with directions for one teaspoonful to be given every two hours. A dose of this was given at 7 p. m., and at about 8 o'clock the patient began to have severe dyspnea because of bronchial râles. She had been sitting reading the paper and visiting but asked to be placed in bed at this time. At about 8:10 the doctor was called. The patient was found profoundly dyspneic and cyanotic. She had a pulse rate of 120, which was regular and of good quality, and a temperature of 101.6. The coarse bronchial râles obscured other breath sounds and little was learned on percussion of the chest. There was slight abdominal distention. The patient frantically asked to be moved back to her chair. This was done. Steam inhalation with tincture of benzoïn compound was started, and drops of dl-1-phenyl-2-aminopropanol-1-hydrochloride were instilled into the nostrils. The dyspnea was relieved almost immediately and the patient fell asleep in her chair. The doctor left. The patient requested that she be allowed to go to bed. At about 9 o'clock another teaspoonful of cheracol was given. At about 9:40 the doctor was hastily called again because of a recurrence of the former symptoms. On arriving, he found the patient in a semiconscious state with all the former symptoms and signs. An examination of the pulse showed a rate of 130. The pulse was strong and regular and continued to be so until about three minutes before her death, which occurred at 10:03. The sudden onset and cessation of symptoms in this case cause me to wonder about the possibilities of an idiosyncrasy to a drug in an asthmatic patient. Please omit name.

M.D., Wyoming.

ANSWER.—Cheracol is composed of the following ingredients to the ounce:

Potassium guaiacol sulfate.....	0.5 Gm.
Ammonium chloride.....	0.5 Gm.
Codeine phosphate.....	0.065 Gm.
Antimony and potassium tartrate.....	0.005 Gm.
Chloroform.....	0.12 cc.
Syrup of white pine and wild cherry.....	30 cc.

Codeine (0.008 Gm. to the teaspoonful) is the only likely drug in this formula that might produce an attack of asthma in a hypersensitive person. There are, however, strong objections to the likelihood of this in the history quoted. The age of the patient, 74, with a duration of asthma of only several years, is against the probability of the attacks being due to extrinsic causes. Moreover, it is improbable that a person of 74 should develop a new sensitivity to codeine. If such sensitivity had previously been present to such a common drug, the patient and the family would probably have been aware of it. The rapid relief obtained from the first attack of asthma described here by such simple measures as steam inhalation with compound tincture of benzoin and instillation of dl-1-phenyl-2-aminopropanol-1-hydrochloride into the nostrils is not characteristic of asthma due to a drug reaction. The reaction due to drugs is usually severe, prolonged and very difficult to control. The presence of fever is, moreover, much more characteristic of an infectious origin rather than a drug reaction, although a febrile reaction may occur as an unusual symptom of drug idiosyncrasy.

INTRAVENOUS EVIPAL FOR DENTAL SURGERY

To the Editor:—At times I am called in to give a general anesthetic for a dentist when he has a patient who so desires something rather than a local anesthetic. Would intravenous evipal bring about a complete enough anesthesia and muscular relaxation for a fifteen minute work period in the mouth? Would it be perfectly safe, and what are the contraindications if any? Please omit name.

M.D., North Dakota.

ANSWER.—The intravenous method of administering general anesthetics, although not exactly new, is not recommended for those who are inexperienced in the use of intravenous anesthetics. The method is not widely used and it has not been standardized. Sodium *n*-methyl-cyclohexenyl methyl malonyl urea (evipal) has not been accepted by the Council on Pharmacy and Chemistry. Some patients are fairly resistant to evipal and the amount of the drug necessary to produce anesthesia depends on whether or not the patient has had preliminary medication, which usually is not administered to dental patients. The use of the anesthetic agent is safer when the patient is lying on an operating table than when he is in a sitting position in a chair. The drug does not affect the pharyngeal reflex particularly, and when the patient is in the sitting position any blood or secretions in the mouth would tend to gravitate to the throat and produce coughing. One also would be faced with the possible danger of aspiration. It would be impossible to predict that the use of this drug in the instances mentioned could be said to be perfectly safe. Since the drug depresses respiration during and after the induction of surgical anesthesia, one

must avoid its use in cases in which pulmonary disease is associated with dyspnea and also in cases in which any respiratory obstruction exists or may occur during the operation or immediately afterward. Its administration to young children should be avoided because of marked depression of respiration and the very small respiratory passage through which the child must breathe.

If one wishes to use this drug in the cases mentioned, it would be well for one first to become experienced in its use in other types of cases and become familiar with actions of the drug. The intermittent method of injection should be employed. A quantity sufficient to produce anesthesia for the entire operation should not be injected at one time. There are many articles (from 350 to 400) on the subject available here and abroad. A few of these articles, which are rather easily available, are listed as references. If a medical library is not readily available, articles might be borrowed, or anesthetists of one's acquaintance would be glad to send reprints on the subject.

1. Council on Pharmacy and Chemistry: Evipal Soluble, *THE JOURNAL*, April 3, 1937, p. 1172.
2. Holman, Albert, and Mathieu, Albert: Intravenous Anesthesia with Evipal Soluble, *Am. J. Obst. & Gynec.* **30**: 118 (July) 1935.
3. Jarman, Ronald, and Abel, A. L.: Evipan as an Intravenous Anesthetic, *Current Res. Anesth. & Anal.* **14**: 54 (March-April) 1935.
4. Livingston, E. M.; Emy, Sabro, and Lieber, Hyman: Evipal Sodium: A Short Intravenous Anesthetic, *Am. J. Surg.* **26**: 516 (Dec.) 1934.
5. Sebening, Walter, and Beck, W. C.: Short Surgical Anesthesia with Intravenous Sodium Evipal, *Current Res. Anesth. & Anal.* **12**: 213 (Sept.-Oct.) 1933.
6. Treweek, J. A.: Evipan Sodium in Dental Anesthesia, *Dental Gaz.*, February 1936, p. 331.

TOXIC EFFECT OF CYANIDE USED IN CASE-HARDENING COMPOUND

To the Editor:—A man was brought to me who had inhaled concentrated fumes from "Kasenit," a case hardening chemical made by the Kasenit Company of New York. His condition was one of shock with pallid facies, rapid irregular pulse, and blood pressure 110 systolic, 60 diastolic. A severe bronchial irritation of the right lung especially was noted and coughing was continuous. The reflexes were negative. After two days rest the severe cough had subsided, but some moisture was noted in the right side of the chest; at no time was there any rise of temperature. The blood pressure rose to 190 systolic, 110 diastolic. The heart beat was irregular but no pulse deficit was present. The cardiac irregularity was improved to what it was when he was first seen. At this time he developed a weakness in the feet with severe pain in the legs and feet. The feet began to swell. After a few days the swelling decreased and the pain was very much less. He is now in the hospital and it has been ten days since he inhaled the fumes from the "Kasenit." The question has arisen as to whether or not the inhalation of the kasenit fumes caused or precipitated his condition or whether he simply had a heart attack.

J. A. MEASE JR., M.D., Dunedin, Fla.

ANSWER.—The firm mentioned is believed to manufacture a series of case-hardening compounds, chiefly of the open fire type, all of which are marketed under the general trade mark of "Kasenit." This being true, the reference to "Kasenit" in the query fails to identify any particular case-hardening substance. From the acuteness and the severity of the manifestations described, the tendency is to suspect that the case-hardening material in use was one of the cyanides, probably sodium cyanide. Cyanides constitute the chief case-hardening substance in many types of industry. The carelessness with which it is frequently used invites concern. However, the extent of practical hazard is distinctly lessened by the fact that, under the action of heat, cyanides are rather quickly changed into carbonates; thus much of the dust and fumes observable around case-hardening operations represents relatively harmless substances.

In this instance the manifestations described do not include any single characteristic feature of acute cyanide poisoning. In nonfatal cyanide poisoning the victim quickly develops convulsions, followed by a stage of multiple paralyses. During this period the respirations are slow and shallow. After the return of consciousness, prolonged vomiting frequently takes place. For a period of days or weeks there may be observed great weakness, unstable gait, speech difficulties and drowsiness, together with pains in various portions of the body, including headache. Whenever a person has ingested cyanogen compounds or inhaled concentrated vapors or gases to the point that convulsions take place, always there is a marked odor of hydrocyanic acid on the breath. Almost invariably this fact may serve in the making of a precise diagnosis.

In the absence of exact information as to the chemical nature of the case-hardening compound in use, and in the absence of clinical manifestations characteristic of the usual substances used in case-hardening, it becomes necessary to maintain for the time being that the episode described is probably the result of some cardiovascular accident not directly precipitated by any characteristic feature of employment. It is recognized that

excessive heat, arduous labor and other circumstances connected with the work may have played some part in the precipitation of this attack. Even so, this must be recognized as not characteristic of this one particular occupation but as common to a great many.

DIAGNOSIS OF PRECORDIAL PAIN

To the Editor:—My mother, aged 65, has been complaining for the past year of "uneasiness around the epigastric region," "headache." Four months ago she started to complain of pain around both shoulders, radiating to the epigastric region and to the precordium; the duration was from half an hour to three quarters of an hour. Gradually the frequency and severity of the pain has increased and now she gets those attacks almost every day. The pain is not relieved by nitrites, as I have tried them on her. The attacks have no relation to effort, as she has been in bed for the past two months. The only thing that relieves her pain is one-half grain (0.03 Gm.) of codeine. Now she is out of bed but the fear of a coming attack makes her go to bed and stay there all day. She has a blood pressure of 164/110, the systolic fluctuating from 180 to 160 on different occasions, while the diastolic has been from 110 to 104. She complains of belching also and difficulty in swallowing. Urinalysis, blood chemistry and the blood count have been within normal range. The electrocardiographic record revealed myocardial damage in the slurring of QRS and in the abnormal ST intervals. Coronary involvement was suggested by the large Q. The PR interval was 0.16 second, the QRS complex 0.08 second and there was left axis deviation. In a roentgenogram of the chest the heart shadow appeared enlarged in the region of the left ventricle. The aorta appeared somewhat tortuous and increased in width and suggestive of atheromatous changes. A gastrointestinal series gave negative results. She has had a preparation of theobromine and phenobarbital 5 grains (0.3 Gm.) twice a day and carminatives. During the attack (I happened to witness two) there is no change in the blood pressure; she does not go into shock but sweats very slightly. How would you explain her difficulty on swallowing when there is no abnormality in the esophagus and what would you suggest in the line of therapy? Is the precordial pain due to cardiac fatigue (cardiac ischemia)? Please omit name and address if answered through *THE JOURNAL*.

M.D., California.

ANSWER.—A definite answer cannot be given. It is possible that the pain described is anginal in origin, even though it is not directly consequent on effort. Dysphagia is occasionally complained of in the presence of some abnormal cardiac condition causing pressure on the esophagus and occasionally in those suffering from anginal attacks, even when no pathologic condition can be demonstrated. In the latter case it is not so much a dysphagia as that the act of swallowing may bring on the anginal pain. The history given in this case, however, is not a convincing story of anginal attacks. The electrocardiographic observations are no more than might be concomitant with a heart normal for the age.

A hypertrophic osteo-arthritis must be considered, or some other anatomic change in the spine. The pain may be similar to that described here, and in the case of cervical arthritis the patient may designate pain radiating upward over the occiput as "headache." A spinal tumor must always be considered, even though improbable.

Disease of the gallbladder must be considered, even though the possibility appears somewhat remote.

If the pain is anginal in origin, one of the purine base diuretics may be used, and its use persisted in for a period of a few weeks, even if there is no improvement at first.

SIGNIFICANCE OF DICK TEST

To the Editor:—Will you please advise me as to the significance of the Dick test in an adult who required 90 skin test doses before a positive reaction was obtained. If this indicates an increased antitoxin content of the blood, what is the best and easiest method to titrate the antitoxin titer of the blood. In what conditions is this resistance to the Dick test seen? Kindly omit name.

M.D., New York.

ANSWER.—If the skin test solution is potent, which is probably the case if it is a commercial preparation, a patient who gives negative reactions to less than 90 skin test doses of toxin has a comparatively high degree of immunity to scarlet fever. Such higher degrees of immunity are commonly found in persons who have had an attack of scarlet fever complicated by otitis media and mastoiditis accompanied by a purulent discharge over a long period or other suppurative sequelae of scarlet fever. The correspondent already has titrated the antitoxin in the patient's blood. The skin test is a quantitative as well as a qualitative chemical test for scarlet fever antitoxin in the blood. To titrate the antitoxin by neutralization tests in vitro, collect blood from the patient by aseptic technique, allow it to clot in the icebox, collect the serum free from red cells, add 0.5 per cent phenol and make cultures appropriate for determining sterility. Make various dilutions in sterile physiologic solution of sodium chloride of the sterile serum and mix

each dilution with an equal volume of sterile scarlet fever toxin which contains 10 skin test doses in each 0.1 cc. Make control solutions by mixing the various serum dilutions with equal volumes of sterile physiologic solution of sodium chloride and by mixing the toxin solution with an equal volume of sterile physiologic solution of sodium chloride.

After allowing the various mixtures to stand about one and one-half hours at room temperature, make skin tests on human beings known to be susceptible to scarlet fever, making in each individual three intradermal tests consisting of:

First, 0.1 cc. of the toxin control solution, which is the toxin diluted with an equal volume of physiologic solution of sodium chloride.

Second, 0.1 cc. of the toxin-antitoxin mixture, which is the toxin mixed with an equal volume of one of the dilutions of the serum to be tested.

Third, 0.1 cc. of the serum control, which is the dilution of the serum used in the second test mixed with an equal volume of physiologic solution of sodium chloride instead of scarlet fever toxin.

The reactions should be observed at the end of twenty-four hours. The reaction in the first test should be positive and in the third test negative. In the second test the reaction will be negative if the serum in the dilution tested contains sufficient antitoxin to neutralize 5 skin test doses of toxin. Most convalescent serums do not neutralize completely in dilutions of more than 1 in 10.

PARAMETRITIS OF BROAD LIGAMENT

To the Editor.—Since early in April 1936 a married woman, aged 27, has complained of pain in the lower part of the abdomen, most marked on the right side. The pain radiates into the back, especially the right sacro-iliac region. There are no associated gastro-intestinal symptoms. In January the patient contracted gonorrhea from her husband. Smears taken during March and April were negative for gram-negative intracellular diplococci. Physical examination by me and by a consultant revealed nothing of significance except in the pelvis, where moderate thickening and acute tenderness in the broad ligaments were noted. In view of this situation and a history of bilateral salpingo-oophorectomy done five years ago for "pus tubes" elsewhere, bed rest, sedation and long, hot potassium permanganate douches were advised. There was no improvement after four weeks. The Kahn test is negative. The urine (catheterized and voided) is normal except for diplococci in the stained sediment. Retrograde pyelograms were negative. Cystoscopy revealed no abnormality other than a lumbar lordosis, which has increased gradually. During hospitalization, Elliott treatments were given and fluids forced to 4,000 cc. daily. No improvement has occurred. Is foreign protein therapy likely to offer anything in this instance? If so, what type would you advise? What other therapeutic measures, if any, might influence this inflammatory condition? Please omit name.

M.D., Michigan.

ANSWER.—The history suggests a chronic parametritis of the broad ligament, probably secondary to a chronic endocervicitis. There may be a thickening of the sacral-uterine ligaments. The focus of infection in the cervix should be eradicated in this patient by the Sturmdorf operation in preference to electrical coagulation. It is doubtful whether foreign protein therapy would be of any value here until surgical measures have been used. Such therapy might be helpful later, and sterile skim milk is satisfactory with an initial dose of 1 cc. intramuscularly, repeated twice weekly with gradually increasing amounts.

TREATMENT OF ACUTE CERVICAL ADENITIS

To the Editor.—What is the rational treatment of acute cervical adenitis today? Before suppuration, is heat or cold indicated for local application? Are the x-rays of proved value? Is the use of foreign protein or vaccine advised? In my experience these cases have been resistant to any form of treatment. The organisms found when suppuration occurs is usually a streptococcus. All these cases seem to follow a recent nasopharyngitis and are distinguished from infectious mononucleosis by the blood picture and the process being limited to the cervical glands. What treatment should be employed for cervical adenitis accompanying scarlet fever? Please omit name.

M.D., California.

ANSWER.—Almost any of the pyogenic bacteria involving the lymph drainage area may cause acute cervical adenitis, but there is no characteristic change due to any one organism. It may result from an acute process, usually in the nose, mouth or throat but occasionally in the sinuses or skin, with sudden onset and rapid swelling. Usually the swelling of the glands subsides in a few days or weeks. Only a few suppurate, most of them requiring to be drained after one or two weeks. Some gland abscesses lie deep in the neck, making the diagnosis of suppuration difficult. Cervical adenitis associated with scarlet fever, diphtheria and other epidemic diseases as influenza come under this group. Occasionally the source is only a nasopharyngitis with little local reaction.

Before suppuration, the usual treatment is dry heat. Occasionally moist heat is more soothing but it is more difficult to apply satisfactorily. The cervical adenitis may persist for some time without suppuration as a hard indurated process. Usually this gradually disappears without treatment. A similar hard brawny induration without suppuration occurs in association with a chronic infection in the drainage area such as root abscesses or sinus infection. The glands may either swell up suddenly as in the acute infectious diseases or develop gradually. Any pyogenic organisms may cause it, although the streptococcus has been found more frequently. One should be certain that suppuration deep in the neck is not overlooked and then attempt to clear up any foci of infection. The general immunity, which may be low, should be built up by any necessary medical treatment. If the etiologic organism can be determined, a vaccine may be helpful and no doubt a foreign protein may be of value occasionally; but caution in its use is advisable. Locally either moist or dry heat may be helpful.

X-ray treatments by a roentgenologist with very small exposures of approximately one-fourth erythema dose, smaller than in furunculosis or tuberculosis, have been found to stimulate the process and either aid absorption or hasten suppuration.

TREATMENT OF EXTRASYSTOLE OF HEART

To the Editor.—A man, aged 60, apparently in perfect health, with physical signs negative, complains only of one disturbance—extrasystole, or "the heart skipping a beat." I can find no pathologic or functional cause. Yet I fear he is developing into a cardiac cripple of neurotic type. Can you suggest anything better than psychology or advising a prolonged vacation? Please omit name.

M.D., Indiana.

ANSWER.—These are exceedingly difficult cases. The clinical importance of an occasional extrasystole is slight and one hesitates to advise medication, so by all means continue along the line suggested in the question.

Of all the drugs used to combat this situation, the salts of quinidine and quinine seem to have the most effect. A combination of quinidine sulfate and strychnine sulfate is credited with good effect, although it is difficult to see why this should abolish the extrasystole. One must admit that this is bad therapeutics and carefully weigh the disadvantages of the use of cardiac accelerators. Occasionally it is found that coronary dilators will abolish this arrhythmia, even in those cases in which cardiac abnormality cannot be demonstrated. The use of theobromine or theophylline compounds is, at least, without danger.

Lastly, a general sedative will sometimes accomplish the result. Bromides or barbituric acid compounds may be used for this purpose, but again this is bad therapeutics and should not be lightly undertaken.

MORPHINE FOR PAIN IN MALIGNANT HYPERTENSION

To the Editor.—I have a sister, aged 35, with malignant hypertension. She has had this for five years. Her extremities, hands, arms and legs from the knees down show a loss of muscular tissue and the skin appears to be tightened about the bones. She has had circulatory disturbances through her legs during the past year and the skin appears gangrene of two toes. About four months ago she had a cerebral hemorrhage leaving her paralyzed in her right arm and partially her right leg. The gangrene developed at that time. About a month ago she bumped her knee on a cradle and a large apparently trophic ulcer has developed on the knee where there was very little tissue between the skin and the bone, and it is for this reason I am writing to find out what the best management would be for alleviating pain and healing this ulcer, which is about the size of a quarter (24 mm.) and does not appear deep but continues to spread, becoming black and dry in the center, with a whitish gray border. Hot dressings cause rapid spread of the lesion. The blood pressure varies between 230/130 and 215/120. She has mild diabetes for which she is receiving insulin twice daily. Realizing what the ultimate outcome will be, I have sought in vain for some method other than morphine for the alleviation of pain. Any suggestion you may offer will be greatly appreciated. Please omit name.

M.D., Wisconsin.

ANSWER.—From the facts as given, the ultimate prognosis is dark. In view of the diabetes and the tendency for these necrotic lesions to spread, one feels that termination of this tragedy is not far off. Under these circumstances it appears that the judicious administration of morphine is fully justified. Morphine is still the most effective medication for the relief of pain. In the patient's extremely weakened state and with cerebral circulation impaired, small doses, starting with 0.008 Gm. (one-eighth grain), will probably suffice to bring comfort. Certain other methods of relieving pain, such as section of nerve roots or injection of alcohol into the nerve trunks, are obviously out of the question because of the risk of further gangrene. Aminopyrine and related compounds are probably more toxic than morphine.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 13. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science*. Tucson, June 15. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical*. Phoenix, July 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: Little Rock, June 17-18. Sec., State Medical Board of the Arkansas Medical Society, Dr. A. S. Buchanan, Prescott.

CALIFORNIA: San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Medical (Homeopathic)*. Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular)*. Hartford, July 13-14. *Endorsement*. Hartford, July 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29. *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration, Dr. William R. Davidson, 301 State House.

IOWA: *Basic Science*. Des Moines, July 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

MAINE: Augusta, July 6-7. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, July 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MINNESOTA: Minneapolis, June 15-17. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, Oct. 5-6. Sec., Dr. S. A. Cooney, 205 Power Block, Helena.

NEVADA: *Reciprocity*. Carson City, August 2. Sec., Dr. John E. Worden, Carson City.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. Le Grand Ward, Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OREGON: *Medical*. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science*. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, July 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 17-18. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 21-23. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 21-23. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WASHINGTON: *Basic Science*. Seattle, July 8-9. *Medical*. Seattle, July 12-14. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Fairmont, July 12. Sec., Public Health Council, Dr. Arthur E. McClure, State Capitol, Charleston.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in THE JOURNAL, June 5, page 1934.

Illinois January Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held in Chicago, Jan. 26-28, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty-three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Chicago Medical School.....	(1936)	81,	
82, 82, 83, (1937) 80, 81, 81,* 84, 86, 88			
Loyola University School of Medicine.....	(1936)	85,* 87, 87	
Northwestern University Medical School.....	(1936)	85,	
86, 88, 88, 90			
Rush Medical College.....	(1929)	83,	
(1934) 86, (1935) 89, (1936) 81, 82, 82, 82, 84, 85,			
85, 86, 87, 87,* 88*			
School of Medicine of the Division of the Biological Sciences.....	(1936)	83, 84*	
University of Illinois College of Medicine.....	(1936)	81,	
81, 82, 82, 83, 84, 84, 85, 85, 85, 85,* 86, 86, 86,*			
87, 87, 89, (1937) 87			
University of Minnesota Medical School.....	(1928)	80	
University of Manitoba Fac.....	(1936)	83	
Queen's University Faculty		82	
Medizinische Fakultät der		76†	
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	(1935)	83†	
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1930)	83†	
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg.....	(1920)	81†	
Ludwig-Maximilians-Universität Medizinische Fakultät, München.....	(1933)	86	
Universität Heidelberg Medizinische Fakultät.....	(1910)	84†	
(1911) 84†			
University of Edinburgh Faculty of Medicine.....	(1922)	82	

Twenty-six physicians were successful in the practical examination for reciprocity and endorsement applicants held in Chicago, January 28. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
University of California Medical School.....	(1931)	California	
Chicago College of Medicine and Surgery.....	(1917)	Wyoming	
Northwestern University Medical School.....	(1934)	California	
Rush Medical College.....	(1935)	New Jersey	
Indiana University Sch.....	(1935)*	Indiana	
State University of Io.....	(1933)	Iowa	
University of Kansas.....	(1934)	Kansas	
University of Louisville.....	(1926)	W. Virginia	
Johns Hopkins Univer.....	(1931)	Maryland	
University of Maryland.....	(1924)	Maryland	
of Physicians and Surgeons.....	(1921)	Michigan	
University of Michig.....	(1931)*	Kansas	
University of Minnes.....	(1935)	Missouri	
St. Louis University.....	(1933)	Missouri	
Washington Universi.....	(1932)	Penna.	
Jefferson Medical Co.....	(1934)	Penna.	
University of Pennsy.....	(1928)	Penna.	
Woman's Medical College of Pennsylvania.....	(1929)	Wisconsin	
Marquette University School of Medicine.....	(1929)	Wisconsin	
Magyar Királyi Pázmány Petrus Tudományegyetem	(1914)	Wisconsin	
Orvosi Fakultasa, Budapest.....			

School	PASSED	Year Grad.	Endorsement of
University of California Medical School.....	(1927)	N. B. M. Ex.	
Yale University School of Medicine.....	(1934)	N. B. M. Ex.	
School of Medicine of the Division of the Biological Sciences.....	(1933), (1934)	N. B. M. Ex.	

* License has not been issued.

† Verification of graduation in process.

‡ Verification of graduation in process. License has not been issued.

Hawaii January Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, Jan. 11-14, 1937. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Four candidates were examined, 3 of whom passed and one failed. One physician was licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Washington University School of Medicine.....	(1931)	82	
Cornell University Medical College.....	(1932)	76	
University of Sydney Medical School.....	(1924)	86	
School	FAILED	Year Grad.	Per Cent
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	(1936)	76*	

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Louisville School of Medicine.....	(1935)	N. B. M. Ex.	

* Verification of graduation in process.

Book Notices

Administrative Psychiatry. By William A. Bryan, M.D., Superintendent, Worcester State Hospital, Worcester, Mass. Cloth. Price, \$3.50. Pp. 349. New York: W. W. Norton & Company, Inc., 1936.

The title of this book suggests that it is meant for the state hospital administrator and for him it could well become a "how book," dictionary and Bible. But to assume that its usability and applicability is limited to psychiatrists in the administrative department of hospitals would be to overlook the most helpful presentation of hospital therapy and therapeutic management yet written. Every psychiatrist will find the book worth perusing, whether he is connected with an institution or not, but particularly for the institutional psychiatrist it can be an extremely valuable aid and guide. It contains many practical suggestions for all members of the hospital personnel—the business manager, the nursing staff, the therapists, the research members. Remarkable in the book is the point of view. The author is courageous and systematic. He is also progressive, as indicated in such opinions as that the autocratic executive in the hospital organization must give way to a creative leader, with the goal psychiatric rather than economic; the solution to the psychiatric nursing problem is the use of psychiatrically trained graduate nurses working an eight hour duty day; the staff and employees of the state institution should not be isolated from community life by being required to live on the hospital grounds; all group activity is a psychotherapy and should be so planned; occupational and industrial therapy is not therapy if it merely teaches a craft or is an economy for the hospital, and every psychiatric hospital should be a teaching center and carry on research work. Dr. Bryan is courageous because he recognizes that some state hospital psychiatrists will regard many of his suggestions with skepticism and think that they are either impracticable or impossible because of their idealism. But the author bluntly charges these hospital leaders with the responsibility for community leadership, legislative changes and psychiatric advance. The author is systematic. He approaches his subject from many angles. He gives many details and specific helping charts for employees, division of responsibility for occupation, teaching outlines, letters to patients and relatives, clinic organization, responsibilities of social workers, and research protocols.

The chief criticism of the book is that it implies that psychiatry exists only in state hospitals. The author states that "psychiatry has become the function of the state." The scotoma for the private practitioner of psychiatry and the private psychiatric hospital is a serious flaw. Furthermore, one would infer from his book that psychiatry is applied only to the psychoses. Although he lauds the mental hygiene movement, is unusually progressive in his ideas regarding social workers, and mentions the importance of fostering contacts with ministers, lawyers and educators, he apparently does not consider these fields as being a part of an extramural psychiatry. Psychiatry is considered only in terms of mass care of the psychoses and the management of the individual with these illnesses. Other criticisms, briefly stated, are that the book is too short to give help in the management of the individual patient; that, while the author semipologetically acknowledges his acceptance of the Freudian concepts as being most helpful, no apparent application of them to treatment is suggested, and that most of the source references are used superficially and the consequent bibliography is of little use to the student who wants to go further than the author's own experience or ideas.

Death-Fighters. By Paul de Kruif and A. M. Smith. Paper. Pp. 39. Detroit, Michigan: Detroit News, 1936.

This pamphlet is a shocker. It bristles with such terms as "murder," "infamy," "slaughter," "mass murder," "imbecility" and "idiocy." It fastens on the father of a tuberculous family such terms as "mulishness" and accuses him of "if not killing his children with a shotgun, at least coughing them to death with TB microbes." The attitude of citizens at large toward tuberculosis is characterized as murderous complacency. The whole technic is that of shrieking murder for the purpose of attracting public attention. The reader might assume that the

Detroit health department and the medical profession in Detroit had never before paid any attention to the tuberculosis problem and that no attention had been paid to it elsewhere. The thirty years' fight that has been carried on throughout the country is ignored or minimized as if it had done nothing. Acknowledging the many excellent features of the Detroit plan for fighting tuberculosis, out of which this pamphlet grows, one cannot escape the conviction that the pamphlet is its least desirable feature. Calm consideration should convince any experienced worker in public health that shrieking murder may be an excellent way to attract attention and achieve a brief flare of publicity, but it is not the way to make sustained progress. Moreover, it is unfair to the equally earnest but less spectacular toilers in other fields to intimate that in Detroit and in Detroit alone a public conscience has been shown that will result in the eradication of tuberculosis. Finally, the pamphlet leaves the implication that tuberculosis can be overcome quickly. This is not true. The fight must be a long one. Neither individual nor community can be kept forever at a high pitch of enthusiasm. The greater the action, the greater the reaction.

Técnicas de laboratorio clínico. Por Fernando de la Fuente Hita, Jefe de laboratorio del dispensario antituberculoso de Buenavista y del hospital de asistencia social. Paper. Price, 5 pesetas. Pp. 123, with illustrations. Madrid: Gráficas Sánchez, 1936.

This book reviews laboratory tests. The technics discussed by the author are given in the form of articles, most of which were published by the author as original articles in Spanish medical journals from 1928 to 1933. The book includes the following articles: 1. A modification of Volhard's method for quantitative determination of chlorides in urine. The modification consists in replacing nitric acid with an acetic acid solution (for destruction of organic matter in the urine) and in titrating the excess of silver nitrate (after precipitation of the chlorides has taken place) with a known solution of sodium chloride in the presence of yellow potassium chromate as indicator. 2. The technic of the Vernes perethynol test for the diagnosis of syphilis, as it is performed at the Institut prophylactique de Paris. Also a study of the sensitivity of the test and, in this connection, indications of advisability of verifying the results of the test by rereading the results twenty-four hours after the test has been made. 3. Micromethod for quantitative determination of dextrose in the blood. The method is based on Myers and Baley's macromethod, which in turn is a modification of the Lewis-Benedict method for dextrose. 4. Technic, diagnostic and prognostic value of the Vernes resorcinol test for tuberculosis. 5. Technic for deviation of the complement by using the patient's active blood serum. 6. Technic for determination of hemolysins in cerebrospinal fluid in investigating meningeal permeability. 7. Technic and results of the Vernes photometric interpretation of the third Kahn sero-albumin test for the diagnosis of cancer. 8. Technic for evaluation of pyuria and prognostic value of the test in infections of the urinary tract. 9. New quotient for velocity of sedimentation test (Fahræus's reaction). 10. Weltmann's simplified serocoagulation test. 11. Description of Kovarski's modified micro-ureometer and technic. 12. Review of Borowskaja's method for preparation of colloidal gold solutions and Fuente-Hita's technic for the same purpose. Many of the articles published are six and eight years old.

The Extra Pharmacopœia (Martindale). Volume I. Published by direction of the Council of the Pharmaceutical Society of Great Britain. In two volumes. Twenty-first edition. Cloth. Price, 27s. 6d. Pp. 1,182. London: Pharmaceutical Press, 1936.

The first edition of Martindale's Extra Pharmacopœia appeared in 1883 and since 1912 it has appeared in two volumes. Volume I is devoted mainly to treatment with drugs and chemicals. Volume II, which has always been less popular, is concerned with matters of diagnosis, analysis, assay and "divers subjects—which could not be included in the first volume." It is an extensive compendium of therapeutic agents employed in England and the British Empire. There is no exact counterpart published in this country. It deals primarily with the preparations found in the British Pharmacopœia and the British Pharmaceutical Codex but differs essentially from the latter in not being an official publication in any sense of the word.

Therapeutic description of each item consists in most cases of a preliminary paragraph followed by brief excerpts from the current literature. Preparations are designated as being included in various English formularies or in the official pharmacopeias of other nations. It is noted, therefore, that no preparation is indicated as being an N. F. or N. N. R. item. Frequent reference is made to articles that have appeared in *THE JOURNAL* and direct quotations from reports of the official councils of the American Medical Association are made in connection with cevitamic acid (*Acidum Ascorbicum* B. P. Add.); the claims for vitamins A, B₁ and D; the standardization of liver preparations; the Council's selection of the word "ergonovine" for use in N. N. R.; the reports of the Advisory Committee on Nomenclature of Endocrine Principles and the series of articles that comprise Glandular Physiology and Therapy. On the other hand, the volume can hardly be considered (or expected to be) an adequate guide for the critical evaluation of the almost endless number of therapeutic preparations that are listed. This edition is thoroughly abreast of the times and includes preparations that have recently been added to the British and U. S. pharmacopeias as well as the newer remedies reported in the medical literature. The volume represents an enormous amount of work, and the extensive listing of the names of the drugs alone is of value. The book has a comprehensive index containing approximately 11,000 entries and follows the general style of previous editions. It should be welcomed by those who have found the preceding volumes useful.

History of Chinese Medicine: Being a Chronicle of Medical Happenings in China from Ancient Times to the Present Period. By K. Chinlin Wong, Licentiate of Medicine and Surgery, Hongkong, and Wu Lien-teh, M.A., M.D., Dr.M.Sc., Director, National Quarantine Service. Second edition. Cloth. Pp. 906, with 38 illustrations. Shanghai, China: National Quarantine Service, 1936.

A review of the first edition was published in *THE JOURNAL*, July 1, 1933. That a second edition was forthcoming about four years later attests the fact that the history of Chinese medicine is a fascinating story. The volume comprises two distinct books: Book one, by Dr. K. C. Wong, lecturer on medical history at the National University in Shanghai, deals with the history of the indigenous art from the earliest recorded period to the close of the eighteenth century; and book two, by Dr. Wu Lien-teh, director of the Manchurian Plague Prevention Service, treats of the last 130 years, the period since the introduction into China of Western medicine by the foreign missionaries. Book one is the smaller for two reasons: (1) there are many difficulties inherent in the collection of records of medical discoveries during the very early centuries covered by the first book and (2) medical progress in China came to a standstill long before the close of the seventeenth century and remained so throughout the fruitful years following Harvey's discovery of the circulation of the blood; it was resuscitated only when the medical missions came to China. In the second edition, some new chapters have been added and several others have been rewritten. Book one now contains twenty-six chapters instead of twenty-one. The chapters on ancient drugs, decline of the native practice, and prominent practitioners of the Ching dynasty, are among the new chapters. In book two, a chapter on the consolidation of medical work under government auspices in the last eight years has been added. The crowning feat of public health work in China during this period (1928-1936) was the establishment of a ministry of health under the national government in Nanking. The ministry of health has advanced rapidly toward a modern public health program, establishing school health service, which was extended to fifty municipal schools; child and maternity health measures, including the training of native midwives; health education through posters, pamphlets and a monthly magazine; public health nursing, and an industrial health program. In 1930 a Peiping committee on maternal health was established and the first birth control clinic was opened under the auspices of this committee in the same year. On account of the need of modern doctors, a program was also laid out for the establishment of medical schools in each of the provinces, the standards of which were to be the consideration of a committee established jointly by the ministers of education and health. Among other councils under the ministry of health were the Council on Research, the council on publication, the council on medical missions, and steps were

being taken for the formation of a council on pharmacy and chemistry. The Chinese Pharmacopeia, based largely on the Pharmacopeia of the United States, Japan, Great Britain and Germany, was adopted in 1930.

The Social Component in Medical Care: A Study of One Hundred Cases from the Presbyterian Hospital in the City of New York. By Janet Thornton, Director, Social Service Department. In collaboration with Marjorie Strauss Knauth, Assistant Physician, Department of Medicine. Cloth. Price, \$3. Pp. 411. New York: Columbia University Press, 1937.

One hundred patients of the Presbyterian Hospital in New York were studied in detail by physicians and social workers. The purpose was "to discover and describe the social disorders of a certain number of patients and to determine whether the patients' reactions to such disorders were unfavorable to health." The cases are divided into acute, recurrent and chronic. The adverse social factors associated with individual problems of ill health include subsistence, economic protection and faulty personal habits. Measures were undertaken to remedy these unfavorable social factors through control of the environment, supplying deficiencies in environment, helping the patient to utilize available resources, removing obstacles to care, and moving the patient to a more favorable environment. To influence conduct, dependence was placed on explanations, elucidations and demonstrations. An effort was also made to foster more healthful habits. Such treatment required extensive personal attention to each patient. Because only a small percentage of the patients were indigents or in the extremely low income classes, some of the most common economic factors had little importance. Financial factors were not found to interfere with the securing of medical care. There were few cases in which shelter or food were deficient. Labor, although sometimes apparently excessive, was found in several cases to be a help rather than a hindrance to recovery. One clearly essential factor of such work is a close, sympathetic relation with and long time, personal effort by a physician in cooperation with medical social service workers. Such treatment would manifestly be impossible under any system of sickness insurance in which close personal relations were not assured.

Les lésions organiques du cœur: Étude clinique, anatomique et thérapeutique. Par R. Lutembacher. Cloth. Price, 300 francs. Pp. 351, with 185 illustrations. Paris: Masson & Cie, 1936.

The purpose of the author is clearly stated in the introduction. He recognizes the rather schematic conception of disease that results from didactic teaching with the embarrassing confusion that follows when the student and practitioner are confronted with the concrete facts of daily practice. "Clinical teaching controlled by necropsy is the indispensable complement of theoretical instruction." This work, the result of twenty years of practical experience with the diseases of the heart, is issued as a contribution to such clinical teaching. The book is really an atlas of 185 illustrations from photographs of hearts found at necropsy. The publishers are justified in praising these not only as faithful reproductions of the anatomic specimens but also as examples of photography that is highly artistic. With the aid of small guide-diagrams and the legends one is easily able to identify the various parts of the organ. Brief clinical histories and abstracts of the other conditions found at the necropsy are furnished. Around these illustrations has been built a descriptive outline of certain types of heart disease, such as the inflammations, valvular lesions, disorders of the coronary artery, and aneurysm, with some consideration of diagnosis and treatment. The latter feature is occasionally rather overemphasized, with intravenous medication too frequently advocated. This skeleton text may help make the book of worth to the practitioner but the real value, as has been said, lies in the illustrations. The author, already well known in cardiology as an appended list of some hundred of his articles attests, has really added to his reputation by this fine volume, which is the result of patient collecting of these histories and anatomic specimens that has enabled him to present in an attractive and instructive form this unusual book. The publisher's work has been excellently done. The remarkably clear illustrations are of natural size. Type, paper, margins are all that could be desired. The pages measure 25 by 32 centimeters.

Oral Diagnosis and Treatment Planning: A Textbook for Students and Practitioners of Dentistry and Medicine. Edited by Samuel Charles Miller, D.D.S., Associate Professor in Charge of Periodontia Department, New York University College of Dentistry. With an introduction by Allen T. Newman, M.S., D.D.S., Dean, New York University College of Dentistry. Cloth. Price, \$7.50. Pp. 620, with 562 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

This is intended primarily as a text and reference book for dental students, though it is of equal interest and value to practitioners of both dentistry and medicine. It represents the trend in dental literature and education to extend the attention from the teeth and their immediate supporting tissues to the oral cavity and all the conditions manifested in the mouth and associated parts. It especially emphasizes the relation between oral and systemic conditions and tends to break down the lines of demarcation between dentistry and medicine. The chapters treat such subjects as oral diagnosis, head pain and pain of dental origin, mouth conditions in children, radiographic diagnosis, abnormalities of the temporomandibular articulation, tumors of the oral mucous membrane, mouth infections and their relation to systemic disease, and oral manifestations of endocrine dysfunctions. There is an interesting chapter on oral and dental diseases of occupational origin. While this is necessarily sketchy, it is interesting and valuable for reference. Such books are extremely valuable but tend of course to be somewhat superficial. They cannot be a substitute for a thorough knowledge of pathology. The chief criticism that might be made of the book is that it is a mixture of pathology, clinical diagnosis and dental technical procedure; but, in a field so comparatively new, satisfactory form and organization can be arrived at only by experience and experimentation. The book is profusely illustrated both in black and white and in color, and most of the illustrations are well reproduced. Naturally there are statements that might be questioned. Many practitioners may find it a valuable book of reference.

Control of Animal Parasites: General Principles and Their Application. By Maurice C. Hall, Ph.D., D.Sc., D.V.M. Cloth. Price, \$2. Pp. 162, with illustrations. Evanston, Illinois: North American Veterinarian, 1936.

This is a book of biologic strategy, a phase of scientific activity all too little developed in both instruction and practice in applied biology and medicine. The author treats, as a problem of attack along the lines of well established military principles, the control of parasites in domesticated animals and in man in instances, such as trichinosis, in which man is or may be involved as one of the facultative or obligatory hosts. Diagrams present in visual form all the factors involved in the problems of control. Life histories are lines of communication between infested and susceptible host animals. The weapons available for direct attack on the parasite, on its lines of communication and on its reservoir hosts are brought out of the arsenal. Such a presentation is especially valuable to the physician and the veterinarian in showing the part each of these plays in the campaign for the relief of his patients and the protection of his clientele from infection. It also affords a point of view not elsewhere adequately and so dramatically presented of great value in instruction in parasitology and in public health. Specific examples in the medical fields are the plans of campaign against yellow fever, malaria, trichinosis, beef and pork tapeworms, dog fleas, pinworms, hookworms, and hydatid disease.

Pathologie der Functionen und Regulationen. Von Prof. Dr. L. Lichtwitz, Chef der medizinischen Abteilung des Montefiore Hospital, New York City. Paper. Price, 13.25 florins. Pp. 332, with 125 illustrations. Leiden: A. W. Sijthoff's Uitgeversmaatschappij N. V., 1936.

This embraces not only recent advances in medicine but a point of view developed by the author which is provocative and enlightening. His main thesis is that there exists a neurohormonal regulatory mechanism in the diencephalic hypophyseal region which governs function generally. A pointed example is the thyroid gland. Normally the vegetative center in the diencephalon activates the formation of thyrotropic hormone in the hypophysis, which in turn stimulates the thyroid gland to the formation of thyroxine. The latter acts on the diencephalic center in a negative way, preventing overstimulation of the hypophysis until an equilibrium is established. Thus the pathogenesis of disease as well as the other diseases

discussed must be considered in a new light, as should the methods of treatment. Similarly the author takes up the various diseases as affecting systems rather than a single organ. In addition to his discussion of the glands of internal secretion and the pathology of their functions, the author stresses the important rôle of the diencephalic hypophyseal complex in the pathogenesis of immunity, rheumatic fever, arthritis, gout, blood dyscrasias, hypertension, nephritis and nephrosis. Although much of the material presented is gathered from the literature, a large percentage is from the author's personal clinical, chemical and pathologic experience. There are numerous case histories, reproductions of photographs of patients, and roentgenograms, as well as graphs representing various tolerance tests and chemical analyses. Unfortunately, many of the inferences were drawn from the finding of a central lesion in association with a peripheral one, implying that the former pathologic condition predisposed to the latter. Similarly the central action of drugs was considered as proof presupposing that the drug would not act peripherally, but the author answers this criticism in his preface, stating that although this book was written in the spirit of optimism and skepticism new ideas were not only presented without fear but encouraged. Because of its wide scope, this publication should prove stimulating to specialists in all branches of medicine.

Milk and Milk Products Prepared for the Use of Agricultural College Students. By Clarence Henry Eckles, D.Sc., Willes Barnes Combs, M.A., Professor of Dairy Husbandry, University of Minnesota, and Harold Macy, Ph.D., Professor of Dairy Bacteriology, University of Minnesota. Second edition. Cloth. Price, \$3.50. Pp. 386, with 92 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1936.

The second edition of this welcome textbook on milk and milk products continues the reputation earned by the earlier edition. The book is primarily designed as a textbook for students in agricultural colleges; it therefore contains much material that could well be omitted for medical readers. Despite this duplication, which is necessary to preserve the functions for which the book is intended, the volume affords a mass of information on milk and dairy products that will interest the physician and the general reader. There are chapters touching on common dairy processes, the manufacture of butter, cheese and ice cream, and the methods of preparing evaporated milk and dry milk. There is no mention in the book of curd tension and methods of determining this property, nor is there any discussion of milk that has been treated to modify the curd.

Hígado, vías biliares y páncreas. Por el Doctor Marcelo Royer, jefe de la sección gastro-enterología del Instituto de Semiólogía. Paper. Pp. 132, with 49 illustrations. Buenos Aires: "El Ateneo" Librería científica y literaria, 1936.

Royer's book contains nineteen chapters in which the symptomatology of liver, biliary and pancreatic diseases and the several methods of examination of these structures are described. Certain methods and maneuvers for palpation in liver and biliary diseases are shown by illustrations. The diagnostic value of the methods of palpation to which the author refers is discussed. The aspect of the abdomen in certain conditions of the pancreas is shown by illustrations. The diagnostic significance of several roentgenograms of the liver, the biliary tract and the pancreas, which were taken in several aspects by the indirect and direct methods of visualization of the structures and which are shown in the book, is discussed in detail. Modern technics for roentgen examination of the biliary tract are given in detail and the diagnostic value of the technics is discussed. Functional tests for the liver, tests for biliary and hepatic secretions and functional tests for the pancreas are covered. The illustrations are clear.

Nutritive and Therapeutic Values of the Banana: A Digest of Scientific Literature. Paper. Pp. 143. Boston: Research Department, United Fruit Company, 1936.

The Research Department of the United Fruit Company has scoured the literature of scientific and clinical articles on the use of the banana as a food. The present volume is a compilation of 292 abstracts listed alphabetically according to authors. There is a subject index but no author index.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Practice of Dentistry Under Assumed Name Unlawful.—The dental practice act of Michigan forbids the practice of dentistry under any false or assumed name, or under the name of a corporation, company, association, parlor or trade name, or any name other than that under which the license of the practitioner was granted. The state board of dentistry served written notice on a number of dentists informing them that on and after a certain date the prohibitions contained in the dental practice act would be enforced. The plaintiffs in the present action, all licensed dentists, instituted proceedings to enjoin the board from interfering with their practice. The trial court dismissed the plaintiffs' bill of complaint and they appealed to the Supreme Court of Michigan.

The bill of complaint disclosed that plaintiff Raymond H. Dix conducted five dental offices in Michigan under the name of "Dr. Dix Dentists." Five other plaintiffs used substantially the same modification of their respective names. Plaintiff Treverton E. Lewis practiced dentistry under the title of "Peerless Dentists." Plaintiff William G. Zieve operated four dental offices under the style of "Dr. Zieve's Modern Dentists." The business of plaintiff J. Bain McGilvray was carried on under the name of "Red Cross Dentists," and that of plaintiff Gordon B. Sullivan under the name of "Dr. G. B. Sullivan's Practical Dentists." The plaintiffs contended that the dental practice act, if it prohibited them from practicing dentistry under the titles they used, was unconstitutional. The legislature, said the Supreme Court, in enacting the dental practice act, undertook to provide conditions essential to regulation, to prevent deception, and to require a definite and accurate announcement to the interested public as to the individual identity of each dentist who was practicing in a dental office. To accomplish this end, it prohibited the practice of dentistry by any person "under any name other than that under which his license was granted." Such a prohibition does not impose on those practicing dentistry a regulation that is either arbitrary or unreasonable. The provision is reasonably suited to the requirement of proper supervision of the practice of dentistry. It also provides prospective patients with pertinent information. Clearly, the court thought, it is both competent and proper that the legislature should forbid the practice of dentistry under an assumed or fictitious name, such as "Peerless Dentists," "Red Cross Dentists," "Dr. G. B. Sullivan's Practical Dentists," and "Dr. Zieve's Modern Dentists." The court could see no hardship or anything that was arbitrary or unreasonable in requiring a person engaged in the practice of dentistry to include in the name under which he carries on his profession the identical name under which he was licensed to practice. The legislature further prohibited the use of any word or words as a part of the business name which are either "false" or "assumed." In the opinion of the court, it would be too narrow a construction of legislative intent to hold that the use of a name, otherwise conforming to statutory requirement, was violative of the act because it had affixed thereto some such word as "dentists," "associates," "employees," or the like. The appended word or words, in such a case, would not convey a false impression or mislead the public. It would not be contended, the court said, that John Doe, a dentist, might not in his practice use the business title "John Doe, Dentist." If he employed other dentists in his office, a sign reading "John Doe, Dentists" would tend to accuracy and be informative rather than deceptive. If John Doe desired to convey to the public that other dentists in his office were his employees and hence under his control as to quality of service, etc., he might well carry on his profession as "John Doe's Dentists." Such a designation speaks the truth. It is not a false or assumed name, nor a "parlor or trade name"; it accurately discloses the full name under which John Doe was granted his license.

The court disagreed with the plaintiffs' contention that they had a vested right in their respective business titles, accrued

to them from a long established professional business and the expenditure of large sums of money in its development. A dentist enters on the practice of his profession, the court pointed out, knowing it is subject to reasonable regulation by the state. He has no right to use, or by reference to continue to make use of, a type of business title which in its exercise of reasonable regulation the state has forbidden. The Supreme Court disagreed with the board's contention that a court of equity has no jurisdiction to grant the injunctive relief sought by the plaintiffs, that each of the plaintiffs had an adequate remedy at law by urging as a defense his contentions in event of legal proceedings being instituted against him. The situation with which the plaintiffs were confronted, in the opinion of the court, threatened them with irreparable injury and a court of equity had jurisdiction.

With respect to some of the plaintiffs, the court could not determine from the record whether or not the names under which they were carrying on their profession complied with the requirements of the dental practice act. In view of this uncertainty, the court remanded the case to the trial court, with directions to set aside the order dismissing the bill of complaint and to take such further proceedings as might be requisite for a final disposition of the cause.—*Lewis v. Michigan State Board of Dentistry (Mich.)*, 269 N. W. 194.

Tic Douloureux Attributed to Trauma.—The plaintiff fell from a loading chute on a gravel car when one of the pipes which supported it was struck by a passing freight train belonging to the defendant railway company. Among other injuries, he sustained a bruise on one cheek. Subsequently, he suffered intense pain in the side of the face that had been bruised and a diagnosis of tic douloureux was made. Eventually the plaintiff sued the railway company to recover damages for his injuries. The trial court entered judgment for the plaintiff for \$2,000 and the railway company appealed to the court of civil appeals of Texas, Austin.

According to the medical testimony, said the court, tic douloureux is an affection of one of the facial nerves, incurable except by an operation which would result in paralysis of the side of the face and permanent injury to the eye. The medical testimony was conflicting as to whether the tic douloureux was the result of the plaintiff's injuries received from the fall. One physician testified that the medical profession generally was unable to ascribe any cause for tic douloureux. Two other physicians were of the opinion that it could be caused by a blow such as the plaintiff had received and the jury, said the court, evidently accepted the testimony of these two witnesses. The amount of damages awarded, \$2,000, was in the opinion of the court a moderate compensatory award for the plaintiff's pain and suffering, past and prospective. The judgment in favor of the plaintiff was affirmed.—*Texas & N. O. Ry. Co. v. New (Texas)*, 95 S. W. (2d) 170.

Society Proceedings

COMING MEETINGS

- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for the Study of Neoplastic Diseases, Baltimore, June 24-25. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N. W., Washington, D. C., Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Releah Gardner, 22 Arsenal St., Portland, Secretary.
- Montana Medical Association of Great Falls, July 13-14. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rocky Mountain Medical Conference, Denver, July 19-21. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

193: 449-580 (April) 1937

- Studies of Blood Formation in the Fetus and the New-Born: III. Relation of Antianemic Principle: Assay of Fetal Liver and Placental Extracts in Cases of Pernicious Anemia and in Mosquito Larvae. M. M. Wintrobe, Baltimore; with assistance of R. E. Kinsey, R. C. Blount, Baltimore, and W. Trager, Princeton, N. J.—p. 449.
- Quantitative Cytologic Study of Bone Marrow of Adult Dog. J. Stasney and G. M. Higgins, Rochester, Minn.—p. 462.
- Blood Picture Before and After Fever Therapy by Physical Means. F. H. Krusen, Rochester, Minn.—p. 470.
- *Plasma Prothrombin Level in Normal Infancy and in Hemorrhagic Disease of the New-Born. K. M. Brinkhous, H. P. Smith and E. D. Warner, Iowa City.—p. 475.
- Autopsy Incidence of Cholelithiasis: Based on Records of Institute of Pathology, Western Reserve University and University Hospitals, Cleveland, Ohio. A. I. Ludlow, Seoul, Korea.—p. 481.
- Studies of Gallbladder Function: XIV. Absorption of Sodium Tetraiodophenolphthalein from Normal and Damaged Gallbladder. J. Johnson, A. L. Ellis and Cecilia Riegel, Philadelphia.—p. 483.
- Study of Osseous Remains of "Mound Builders" of Eastern Arkansas. E. G. Wakefield, Rochester, Minn.; S. C. Dellinger, Fayetteville, Ark., and J. D. Camp, Rochester, Minn.—p. 488.
- Experimental Radium Poisoning: II. Changes in Teeth of Rabbits Produced by Oral Administration of Radium Sulfate. M. Rosenthal, Brooklyn.—p. 495.
- Gastric Acidity in Alcohol Addicts, with Observations on Relation of B Vitamins to Achlorhydria. P. M. Joffe and N. Joliffe, New York.—p. 501.
- Röntgenographic Studies of Mucous Membrane of Colon: III. Mucosal Detail Studies as an Aid in Early Recognition of Carcinoma of Colon. H. G. Jacobi and F. J. Lust, New York.—p. 510.
- Tuberculous Tracheobronchitis: Its Pathogenesis. J. C. Bugher, J. Littig and J. Culp, Ann Arbor, Mich.—p. 515.
- Observations on Use of Carbon Dioxide in Early Pneumonia. L. Gunther and H. H. Blond, Los Angeles.—p. 525.
- *Inadequate Treatment of Early Syphilis: Clinical Results in 409 Patients. P. D. Rosahn, New Haven, Conn.—p. 534.
- Experimental Study of Variations in Production of Visual Disturbance by Certain New Cinchona Derivatives. W. T. Dawson, Galveston, Texas; H. H. Permar, J. M. Johnston and W. W. G. MacLachlan, Pittsburgh.—p. 543.
- Somatic Phenomena in Psychoneuroses. J. M. Flynn, Boston.—p. 548.

Plasma Prothrombin in Normal Infancy and in Hemorrhagic Disease.—Brinkhous and his associates studied the plasma prothrombin level in a number of pregnant women and found no significant deviation from that of nonpregnant women. Two cases studied shortly before delivery showed values of 100 and 93 per cent of the nonpregnant control. Three, each taken a few minutes after delivery, were 110, 99 and 98 per cent. It is evident that the fetal prothrombin level lacks the stability of that of the mother and that the two levels are not related in any simple way. The plasma prothrombin level in infancy was studied with the aid of a quantitative titration procedure. The level in normal new-born babies varies in this series between 14 and 39 per cent of the level found in normal adult plasma. The prothrombin level rises gradually during subsequent months and reaches the adult level at the end of about a year. After the first few weeks of life the individual cases show little deviation from the curve plotted through the entire group. A case of hemorrhagic disease of the new-born showed the plasma prothrombin to be less than 5 per cent of normal adult values. The antithrombin activity of the plasma was somewhat excessive, but the plasma fibrin was normal. Intravenous transfusion of blood resulted in prompt cessation of bleeding. The plasma prothrombin studied ten and forty-four days later was found to be up to the normal values for infants of that age.

Inadequate Treatment of Early Syphilis.—Rosahn discusses the outcome in 409 patients who had received early inadequate treatment for syphilis. With regard to the diagnosis when treatment was begun, the highest proportion of

satisfactory results (no evidence of syphilis as determined by clinical, serologic and spinal fluid tests one year or more after the last treatment) was noted in the seronegative primary stage. A significantly higher incidence of satisfactory results was observed among patients who had received continuous treatment than in those treated by other systems. The least successful treatment was in patients receiving less than fifteen injections of a trivalent preparation and ten injections of bismuth or mercury compounds. It was best in those treated with these amounts or more. Syphilis of the central nervous system comprised the largest proportion of late relapses. Wassermann recurrent late syphilis had a slightly lower incidence and cardiovascular syphilis still lower. Early infectious relapse and late benign and visceral syphilis had an equal and also the lowest incidence. The 134 patients with a satisfactory result were followed for from one to thirty years after the last treatment; 117 of these had been observed for periods longer than two years after the cessation of specific medication. The most serious danger confronting these patients was the possibility of subsequently developing cardiovascular recurrence. Although inadequate treatment does produce a certain proportion of successful results, adequate treatment schemes as recommended by the Cooperative Clinical Group and by the Health Organization of the League of Nations should be rigorously followed in the management of early syphilis.

American Journal of Ophthalmology, St. Louis

20: 347-456 (April) 1937

- Leiomyoma of the Iris: Report of Case. A. D. Frost, Columbus, Ohio.—p. 347.
- Studies on Infectivity of Trachoma: V. Purification of Infectious Agent by Testicular Passage. L. A. Julianelle and R. W. Harrison, St. Louis.—p. 353.
- Id.: VI. Cultivability of Infectious Agent in Tissue Cultures. R. W. Harrison and L. A. Julianelle, St. Louis.—p. 360.
- Plexiform Neurofibromatosis (von Recklinghausen's Disease) Involving Choroid, Ciliary Body and Other Structures. J. M. Wheeler, New York.—p. 368.
- Lectures on Cataract: IV. Posterior Segment Complications in Post-operative Period; Some Difficult Extractions. R. E. Wright, Madras, India.—p. 376.
- Nodular Dystrophy of Cornea: Six Years After Treatment with Corneal Resection and Radium: Report of Case. H. L. Hügartner Jr. and H. L. Hügartner Sr., Austin, Texas.—p. 387.
- Tuberculous Papillitis with Anatomic Findings: Case. H. D. Lamb, St. Louis.—p. 390.
- Hereditary Paralysis of Abducens Nerve: Report of Case. R. C. Laughlin, Baltimore.—p. 396.
- Krukenberg's Spindle. M. A. Lasky, Brooklyn.—p. 399.
- *Visual Sequels from Epidemic Meningococcus Meningitis. P. Heath, Detroit.—p. 401.
- Influence of Vitamin D: Calcium-Phosphorus Complex in Production of Ocular Pathology: I. Histologic Study of Changes in Fibrous Tunic. S. N. Blackberg and A. A. Knapp, New York.—p. 405.

Visual Sequels from Meningococcal Meningitis.—Heath carried out medical, neurologic, ophthalmic and otologic examinations in sixty-eight cases selected because of a high proportion of complications 25.9 months after epidemic meningococcal infection. Ophthalmic and otologic examinations were made in twenty-five additional unselected cases 82.68 months after the epidemic. The medical examinations showed enlarged livers, spleens and hearts in from 5.8 to 8.8 per cent of the sixty-eight cases; other persisting complications were comparatively infrequent. The neurologic manifestations remaining after the acute stage of the disease were especially pronounced and severe in the personality field. These increased with the selected increase of other complications. The visual sequels averaged 16.1 per cent in ninety-three cases and were divided into muscular disturbances, 7.5 per cent; pupillary disturbances, 2.15 per cent; endophthalmitis, 4.3 per cent, and changes in the fundi, 2.15 per cent. Many complications of the eye in the acute stage of the disease were fugitive, but those persisting apparently had been acquired early in the disease. Loss of hearing, total and partial, was a most frequent and serious complication, and in the selected cases the visual sequels increased, but not proportionally with the auricular. Allowing for the higher proportion of complications in the patients who returned to the hospital because of their availability, the visual residue was less than 10 per cent. One is led to the conclusion that most of the visual damage in this disease is done early, during the overwhelming septicemia and toxemia, and that a continuing process is relatively uncommon.

American Journal of Physiology, Baltimore

118: 633-818 (April) 1937. Partial Index

- Tissue Extracts and Blood Coagulation. F. R. Davison, Morgantown, W. Va.—p. 633.
- *Study of Blood Sugar Raising Substance in Urine of Diabetic and Non-diabetic Patients. S. C. Werch and S. S. Altschuler, Eloise, Mich.—p. 659.
- Positive Friedman Tests in Pregnant Rhesus Monkey, Macaca Mulatta. G. W. D. Hamlett, Baltimore.—p. 664.
- Direct Determination of Renal Blood Flow and Renal Oxygen Consumption of Unanesthetized Dog. M. F. Mason, A. Blalock and T. R. Harrison, Nashville, Tenn.—p. 667.
- Effects of Cortico-Adrenal Extract on Growth and Sexual Activities. O. G. Fitzhugh, Burlington, Vt.—p. 677.
- Study of White Blood Cell Picture in Six Young Men. B. R. Kennon Jr., Mary E. Shipp and D. C. Hetherington, Durham, N. C.—p. 690.
- Effect of Variations in Total Calcium Concentration on Coagulation Time of Blood. Marian M. Crane and H. N. Sanford, Chicago.—p. 703.
- Effect of Hemorrhage, Intestinal Trauma and Histamine on Partition of Blood Stream. A. Blalock and S. E. Levy, Nashville, Tenn.—p. 734.
- Influence of Oil Enemas on Colon Motility in the Dog. E. L. Borkon and R. D. Templeton, Chicago.—p. 775.
- Control of Large Intestine by Decentralized Inferior Mesenteric Ganglion. H. Lawson and J. P. Holt, Louisville, Ky.—p. 780.
- Some Neural Components of Visual Response. C. A. Elsberg and H. Spontitz, New York.—p. 792.

Blood Sugar Raising Substance in Urine.—The so-called diabetogenic substance used in these experiments was prepared from the urine of six male and five female patients: four controlled and two uncontrolled diabetic patients taking insulin, two controlled diabetic patients not taking insulin and three nondiabetic patients. In each case the product was tested on three rabbits and three dogs, which had been previously starved for twenty-four hours. Since the material remaining in the urine after the removal of the protein gave a blood sugar rise in the animals used, it was evident to Werch and Altschuler that they were not dealing with a protein reaction. Their results are in accord with those of Houssay and his collaborators; namely, that the blood sugar raising substance is easily adsorbed, soluble in water and in 60 per cent alcohol and insoluble in fat solvents. It does not pass through ultrafilters and boiling destroys its activity. The experiments performed on the factor furnished by normal urine showed that it is present in nondiabetic urine, if at all, in small quantities, since the resulting blood sugar rise is within the limits of experimental error. From those experiments performed on the factor obtained from the urine of controlled diabetic patients taking insulin, one may conclude that it is present in considerable quantity. The factor prepared from uncontrolled diabetic patients taking insulin gave readings much like those obtained by the substance of the preceding group. The blood sugar rise given by the factor prepared from controlled diabetic patients not taking insulin is not as great as that given by the factor prepared from controlled and uncontrolled diabetic patients taking insulin, in whom the diabetes was obviously more severe. However, the rise is greater than the expected experimental error and hence the substance may be considered present even if only scantily.

American Journal of Public Health, New York

27: 313-432 (April) 1937

- Control of Septic Sore Throat. G. J. Hucker, Geneva, N. Y.—p. 313.
- Study of Air Pollution in New York City. S. Pincus and A. C. Stern, New York.—p. 321.
- *Relation of Bovine Mastitis to Human Disease. P. B. Brooks and W. Von D. Tiedeman, Albany, N. Y.—p. 334.
- Methods for Making and Significance of Cream and Butter Sediment Tests. E. H. Parfitt, Lafayette, Ind.—p. 341.
- Improved Laboratory Apparatus. J. C. Willett, St. Louis.—p. 346.
- Public Health and Physical Education. R. L. Allen, Ann Arbor, Mich.—p. 349.
- Vi Antigen in Carrier Strains of Eberthella Typhosa. H. Welch and F. L. Mickle, Hartford, Conn.—p. 351.
- Modification of Van Gieson's Stain for Negri Bodies. N. Nagle and C. L. Pfau, St. Louis.—p. 356.
- Study of Vi Antigenic Fraction of Typhoid Bacilli Isolated from Carriers and Cases, and Antibody Content of Serum of These Patients. Lois Almon, Jane Read and W. D. Stovall, Madison, Wis.—p. 357.
- International System of Health Indexes: Preliminary Report. K. Steuman and I. S. Falk, New York.—p. 363.
- Reaction of Young Adults to Alum-Precipitated Diphtheria Toxoid. Ruth E. Boynton and R. V. Ellis, Minneapolis.—p. 371.
- Working Environment. A. S. Gray, Hartford, Conn.—p. 378.

Relation of Bovine Mastitis to Human Disease.—The observations of Brooks and Tiedeman support the belief of others that the organisms responsible for cases of mastitis asso-

ciated with outbreaks of septic sore throat and scarlet fever are always of human origin; i. e., their source is persons, usually milkers, with infected throats or, occasionally, wounds. In their laboratory the organisms clearly responsible for epidemics usually have not shown the characteristics of the so-called *Streptococcus epidemicus*. The streptococci agalactiae and mastitidis usually associated with mastitis are commonly regarded as harmless for man. However, their toxins, in milk from cows with mastitis, apparently have been responsible for outbreaks of gastro-enteritis. Similar organisms have been isolated in cases of low grade infection in man and in fatal cases of uterine infection. The authors know of no evidence that relative general freedom from mastitis, as reported in the South, offers any protection against accidental infection with human organisms. The general control of mastitis, if feasible, probably should be considered primarily an economic problem of the dairy industry. There is nothing in the physical condition in such a case of mastitis to differentiate it from the ordinary types of mastitis, and careful laboratory studies ordinarily are made only in the presence of an epidemic. There is evidence suggesting that organisms commonly present in mastitis may invade human tissues. Pasteurization destroys all these organisms and probably their toxins as well, but when milk is being sold without pasteurization all cases of mastitis should be regarded as potentially dangerous and milk from any cow suffering from the disease should be excluded.

Annals of Internal Medicine, Lancaster, Pa.

10: 1459-1616 (April) 1937

- Thyro-Activator Hormone: Its Isolation from Anterior Lobe of Bovine Pituitary Gland and Its Effects on Thyroid Gland. E. Uhlenhuth, Baltimore.—p. 1459.
- Auricular Fibrillation: Present Status with Review of Literature. I. C. Brill, Portland, Ore.—p. 1487.
- *"Surgical Shock" Factors in Pneumonia. E. Andrews and H. N. Harkins, Chicago.—p. 1503.
- *Encephalitis Due to Undulant Fever: Report of Four Cases. E. P. McCullagh, Cleveland, and H. M. Clodfelter, Columbus, Ohio.—p. 1508.
- Nonvalvular Heart Disease Under the Age of Forty-Six Years. S. O. Dexter Jr. and D. L. Farnsworth, Boston.—p. 1514.
- Significance of Specific Pneumococcus Types in Disease, Including Types IV to XXXII (Cooper). M. Finland, Boston.—p. 1531.
- Outbreak of Trichiniasis in Central Ohio and Use of Bachman Intra-dermal Skin Test. A. A. Hall, Columbus, Ohio.—p. 1544.
- Chronic Ulcerative Colitis: Factors Influencing Its Response to Specific Treatment. W. C. Simpson and J. A. Bargen, Rochester, Minn.—p. 1551.
- *Further Observations on Rapid Hyposensitization. G. L. Waldbott and M. S. Ascher, Detroit.—p. 1556.
- Therapeutic Use of Venesection in Polycythemia. D. J. Stephens and N. L. Kaltreider, Rochester, N. Y.—p. 1565.

"Surgical Shock" Factors in Pneumonia.—Andrews and Harkins observed the weight of the lungs and the presence of pleural fluid in twenty-three cases of lobar, terminal or bronchopneumonia coming to necropsy. The average excess weight of the lungs in these cases (assuming normal lungs to weigh 600 Gm.) represented 2.45 per cent of the body weight. In several instances there was appreciable pleural fluid. This brought the total increase to 2.81 per cent of the body weight. No chemical analyses were performed, but if this amount represents blood or blood plasma it is of considerable significance and a condition resembling surgical shock may result. The lungs of two distemper and one pneumonia dog were analyzed chemically and compared with those of a normal dog. The analyses show that the nitrogen and protein content in abnormal lungs is essentially the same as in normal lungs, indicating that the pneumonic exudate contained protein. In certain instances different portions of the lung (right or left side) were markedly edematous without corresponding dilution of the protein content.

Encephalitis Due to Undulant Fever.—McCullagh and Clodfelter report four cases of encephalitis, in one of which features highly suggestive of hypothalamic and pituitary damage were present. In all the cases the agglutination test or skin test indicated that undulant fever was present and in none were other etiologic factors demonstrated. The relationship between encephalitis and undulant fever was suspected in the first case and this was proved as far as was practicable. In the second case the diagnosis of encephalitis was made ten

months before undulant fever was suspected as the etiologic factor. In the third case, decreased menstrual flow was associated with somnolence and other evidence of hypothalamic damage. The etiologic factors have apparently been the organisms of undulant fever as determined by agglutination tests in two cases and by intracutaneous tests in the other two cases. Two patients have shown improvement without specific treatment. The third patient failed to improve without specific treatment but showed some improvement following specific treatment. While there is improvement at present in the condition of the fourth patient, the prognosis seems uncertain in view of the history. While the authors realize that the evidence presented does not constitute proof that encephalitis in these cases was actually caused by the growth of *Brucella melitensis* in the perivascular spaces or nervous tissue of the brain and cord, the observations are nevertheless highly suggestive.

Rapid Hyposensitization.—Waldrott and Ascher believe that rapid hyposensitization deserves a definite place in the treatment of allergic diseases. Particularly in the severe asthmatic patient in whom the causative antigens are known, it has proved to be the method of choice. Successful treatment by this method is dependent on the administration of the proper antigen or combination of antigens; i. e., those which form the patient's dominant sensitivity. The danger of causing constitutional reactions or of aggravating existing symptoms can be obviated if one abides by the following principles: 1. The initial dose should be sufficiently low so as not to produce much local swelling. 2. The doses and intervals between treatments should be carefully gaged for each individual injection, the principal guide being the degree of local edema which is produced by the previous one. 3. An incipient constitutional reaction, which may merely manifest itself by a temporary aggravation of existing symptoms, should be recognized and carefully guarded against by a readjustment of the proposed schedule of treatment. 4. No epinephrine, or as little as possible, should be used in conjunction with the treatment in order not to interfere with the production of a local swelling.

Archives of Internal Medicine, Chicago

59: 561-758 (April) 1937

- Retention and Utilization of Orally Administered Iron. W. M. Fowler and Adelaide P. Barer, Iowa City.—p. 561.
- Chronic Nephritis in Rats Fed High Protein Diets. N. R. Blatherwick, New York, and E. M. Medlar, Mount McGregor, N. Y., with assistance of J. M. Connolly, Phoebe J. Bradshaw, Anna L. Post and Susan D. Sawyer.—p. 572.
- *Acute Vegetative Endocarditis Caused by *Bacillus Diphtheriae*. G. J. Buddingh and Katherine Anderson, Nashville, Tenn.—p. 597.
- *Clinical Significance of Bacteremia in Pneumococcal Pneumonia. R. C. Tilghman, Baltimore, and M. Finland, Boston.—p. 602.
- The Blood Nitrite. E. J. Stieglitz and Alice E. Palmer, Chicago.—p. 620.
- Effect of Sunlight on Clinical Manifestations of Pellagra. D. T. Smith and J. M. Ruffin, Durham, N. C.—p. 631.
- Uveoparotitis. W. C. Thompson, Albany, N. Y.—p. 646.
- *Relation of Experimental Atherosclerosis to Diets Rich in Vegetable Protein. R. H. Freyberg, Ann Arbor, Mich.—p. 660.
- Torula* Infection of the Central Nervous System. E. A. Levin, San Francisco.—p. 667.
- Unusual Glycogen Storage in Case of Diabetes Mellitus. E. W. Brian, A. J. Schechter and E. L. Persons, Durham, N. C.—p. 685.
- Chloroma: Review of Literature from 1926 to 1936 and Report of Three Cases. Ernestine V. Kandel, Chicago.—p. 691.
- Treatment of Occlusive Arterial Disease of Extremities by Passive Vascular Exercise: Report of Sixty-Eight Cases. H. M. Korns and A. E. Feller, Iowa City.—p. 705.
- Effect of Magnesium on Vascular Spasm in Rats. M. I. Rubin and M. Rapoport, Philadelphia.—p. 714.
- Liver and Biliary Tract: Review for 1936. C. H. Greene, M. B. Handelsman and A. M. Babey, New York.—p. 724.

Endocarditis Caused by *Bacillus Diphtheriae*.—Buddingh and Anderson cite a case of acute vegetative mitral endocarditis. Morphologically and culturally the organism isolated from the spleen, heart blood and mitral vegetation in this case belonged to the group *Corynebacterium*. Intracutaneous tests in guinea-pigs with a twenty-four hour broth culture and the filtrate of a seven day broth culture produced reactions typical of *Bacillus diphtheriae*. Subcutaneous and intraperitoneal inoculations of the twenty-four hour broth culture caused death in an animal within three days. The administration of standard

diphtheria antitoxin by the standard method protected guinea-pigs against the effect of the organism. These observations prove that the organism isolated from the mitral valve was a true strain of *Bacillus diphtheriae*. The port of entry in this case most likely was an ulceration of the nasopharynx, which was caused by the prolonged packing necessitated by continuous nosebleeds. The mitral valve, previously damaged by rheumatic disease, apparently provided a favorable lodging place for the organism, which gained entry to the blood stream from the ulcerated nasopharynx. From here embolic lesions were set up in the heart, intestine, kidneys, skin and mucous membranes. The endocarditis was rapid and fulminating, lasting for only five days.

Significance of Bacteremia in Pneumococcal Pneumonia.—Tilghman and Finland consider 1,586 cases of pneumonia associated with specific pneumococci of types I to XXXII (Cooper) in which cultures of the blood were made during the acute stage of the disease or at necropsy. For each type the death rate in the cases in which the blood cultures were positive was two or more times as high as in the cases in which the blood cultures were sterile, and for all types it averaged almost three times as high. Positive results of blood cultures were obtained in slightly more than a third of all the cases. The incidence of bacteremia varied widely in the cases of different types and was highest for the cases of pneumonia due to type II pneumococci. In the fatal cases the incidence of bacteremia was four times as great as in the nonfatal cases, and this proportion was even higher when the cases in which serum treatment was given were excluded. The mortality rate increased progressively with the ages of the patients, this being true for patients both with and without bacteremia. The greater mortality for bronchopneumonia was found for each type, both with and without bacteremia. Bacteremia, however, was less frequent with most types of atypical pneumonia. The death rate was higher in the cases in which the greater amount of lung was involved. There was little difference in the incidence of bacteremia and in the death rate for nonusers of alcohol and for habitual drinkers. There was a significantly greater incidence of bacteremia in the cases of pneumonia which occurred in the course of other serious conditions or diseases (so-called secondary pneumonia) than in the cases of primary pneumonia. The differences in the mortality rate at different leukocyte levels varied in the same manner as the incidence of bacteremia. Bacteremia was most frequent in the cases in which the leukocyte count was below 10,000. It was higher in the cases in which the count was 35,000 or more than in those in which it was between 10,000 and 34,000. Bacteremia was more than twice as frequent in the cases in which there were postpneumonic complications as in those in which there were none. Conversely, the complications were more than twice as frequent in the cases of bacteremia as in the cases in which bacteremia was not noted. In the cases in which no specific serum was given, the termination of the acute disease by crisis, lysis or death occurred most frequently between the seventh and the ninth day. Sterilization of the blood stream without apparent improvement of the acute symptoms or in spite of progression of the pulmonary lesion occurred more frequently after serum therapy was given than in cases in which no serum was administered. For the bacteremic patients who recovered, the colony count was usually below 10 per cubic centimeter of blood. The prognosis was usually, but not invariably, found to be unfavorable when the number of colonies increased in successive blood cultures.

Atherosclerosis and Diets Rich in Vegetable Protein.—The studies of Freyberg on the relationship of vegetable protein to atherosclerosis are contrary to those of Newburgh and Squier with animal protein. Diets containing 33 and 37.8 per cent of vegetable protein fed to rabbits for as long as eleven months failed to produce atherosclerosis. Rarely were cholesterol values of the blood observed which were higher than the normal range. These were in every case associated with undernutrition and are thought not to result directly from ingestion of large quantities of vegetable protein. These data suggest that the atherosclerosis observed when rabbits were fed diets rich in muscle meat was due to a nonprotein constituent of this animal food.

Archives of Pathology, Chicago

23: 457-614 (April) 1937

- Sclerosis of Hepatic Veins in Chronic Congestive Heart Failure. H. Gross, New York.—p. 457.
Lipoid Pneumonia of Adult Type (Paraffinoma of the Lung): Report of Five Cases. K. Ikeda, St. Paul.—p. 470.
Weight of Normal Adult Human Kidneys and Its Variability. H. Wald, Minneapolis.—p. 493.
*Rôle of Allergy in Pathogenesis of Progressive Thrombosis; Especially in Regard to Changes in Endothelial Lining of Large Peripheral Veins. J. Tannenber, Albany, N. Y.—p. 501.
Effect of Roentgen Rays on Blood Urea of Rats Immune to Jensen's Sarcoma. Isabella H. Perry, San Francisco.—p. 515.
Pathology of Prostatic Utricle. R. A. Moore, New York.—p. 517.
Rôle of Vitamin C in Resistance. D. Perla and Jessie Marmorston, New York.—p. 543.

Rôle of Allergy in Progressive Thrombosis.—Tannenber studied the influence of allergy on the development of thrombosis with a view to the significance of allergic endothelial changes in the veins. Three groups of rabbits were prepared by nine intravenous injections of antigen (pneumococci, streptococci and sheep serum, respectively). From seven to eighteen days later the right jugular and femoral veins in each animal were exposed and narrowed and an intravenous reinjection was made into the corresponding vein of the ear. Merely local thrombi were obtained, not larger than those in the nonimmunized controls. Only a single rabbit, which in addition presented progressive, widely spread chronic nephritis, showed a kind of progressive thrombosis. In the narrowed segments of the veins endothelial changes morphologically similar to active proliferations were observed. But the failure of the changes to show progression seven, twenty-four and forty-eight hours after the operations and the occurrence of similar changes in the controls showed that to interpret them as allergic, active endothelial reactions would be erroneous. Serial sections revealed that these changes were produced by folding of the endothelium in the narrowed segments, superficial degenerative changes of the endothelium and deposits of blood leukocytes at the injured areas.

California and Western Medicine, San Francisco

46: 217-288 (April) 1937

- Lymphomatoid Disease: Hodgkin's and Leukemic Types—Their Treatment. H. J. Ullmann, Santa Barbara.—p. 224.
Toxemias of Late Pregnancy. J. V. Campbell, Oakland.—p. 226.
Silicosis. H. H. F. Behneman, San Francisco.—p. 232.
*So-Called "Straddle" Injury: Its Management. E. W. Beach, Sacramento.—p. 234.
Pelvic Floor and Adjacent Viscera: Their Plastic Surgery. A. V. Pettit, San Francisco.—p. 240.
Immunotransfusion: Its Use in Treatment of Communicable Diseases. P. M. Hamilton, Alhambra.—p. 245.
Premedication for Surgery. J. C. Doyle, Los Angeles.—p. 248.
Ureteral Calculi. D. H. Gibbs, Los Angeles.—p. 252.
Acute Metastatic Spinal Epidural Abscess. W. J. Van Den Berg, Sacramento.—p. 257.

So-Called Straddle Injury.—When a person falls astride an unyielding surface, such as a timber, the soft tissues and urethra of the perineum are commonly pinched. The force is transmitted to and brought to bear on the weaker and unfortified abutting membranous structure; i. e., the terminal membranous urethra. When extravasation is probable, one should consider the urethral perineum as being divided into three parts, to wit: (1) the area within the superficial perineal interspace, (2) that between the inferior and superior layers of the triangular ligament, or the urogenital diaphragm, and (3) that above or proximal to the superior layer of the triangular ligament. It is also necessary to take cognizance of a fourth area, concerned more often with rupture of the pendulous urethra; extravasation may take place between the layers of Buck's fascia. The vulnerable portion of the membranous urethra (the distal portion) lies in the superficial perineal interspace. That portion of the membranous urethra between the inferior and superior layers of the triangular ligament is sometimes involved in straddle injuries, particularly by puncture wounds. Any extravasation proximal to the superficial layer of the triangular ligament may seep backward into the ischioanal region and buttocks or into the thighs. The area above the superior layer of the triangular ligament is seldom concerned in these accidents save by puncture wounds. Beach's article is based on sixteen straddle injuries seen in the last twelve years. In analyzing the clinical material he

discusses it under the following subheads: urethral injury, preexisting urethral strictures, urinary retention, perineal appearance, bleeding from the penis, pain and tenderness, shock, complications and sequels. The fundamental objective in treatment is to divert the urine from the site of urethral injury and, incidentally, in many cases to relieve acute urinary retention. There are three avenues of approach, used singly or in combination: the catheter, external urethrotomy and cystotomy. In every case of urethral rupture, whether the rupture is partial or complete, the patient should be hospitalized. Each patient is a law unto himself and must be handled accordingly. Many patients with partial ruptures, when catheterization is possible, do well and have no complications when an indwelling catheter is used. If catheterization is impossible, simple and direct surgical intervention must be undertaken without delay. Surgical treatment must not be too extensive at one session. It is better to drain the urine and give the patient a few days of rest, after which one is agreeably surprised at the ease of subsequent accomplishments.

Georgia Medical Association Journal, Atlanta

26: 129-168 (April) 1937

- Cesarean Section. O. R. Thompson, Macon.—p. 129.
Meddlesome Obstetrics. J. Akerman, Augusta.—p. 132.
Hyperventilation: Report of Cases. G. F. Klugh Jr., Atlanta.—p. 134.
Recent Progress in Surgery. S. E. Sanchez, Barwick.—p. 137.

Journal of Bone and Joint Surgery, Boston

19: 279-574 (April) 1937. Partial Index

- Generalized Osteochondrodystrophy: Eccentrochondroplastic Form. I. S. Hirsch, New York.—p. 297.
"Sciatica" Caused by Intervertebral-Disk Lesions: Report of Forty Cases of Rupture of Intervertebral Disk Occurring in Low Lumbar Spine and Causing Pressure on Cauda Equina. J. S. Barr, Boston.—p. 323.
Lesions of Lumbosacral Spine: Part I. Acute Traumatic Destruction of Lumbosacral Intervertebral Disk. P. C. Williams, Dallas, Texas.—p. 343.
Injuries to Accessory Processes of Spinal Vertebrae. M. C. Mensor, San Francisco.—p. 381.
Physiologic Method of Tendon Transplantation in Treatment of Paralytic Drop Foot. L. Mayer, New York.—p. 389.
Fascial Transplants in Paralytic and Other Conditions. F. D. Dickson, Kansas City, Mo.—p. 405.
*Rib-Splinter Graft in Spinal Fusion for Vertebral Tuberculosis. C. K. Petter, Oak Terrace, Minn.—p. 413.
Böhler Clavicular Splint in Treatment of Clavicular Injuries. A. H. Trynin, New York.—p. 417.
Some Factors Which Influence the Balance of the Foot in Walking: Stance Phase of Gait. R. P. Schwartz and A. L. Heath, Rochester, N. Y.—p. 431.
Peritendinitis Crepitans: Muscle-Effort Syndrome. N. J. Howard, San Francisco.—p. 447.
Avulsion Fracture of Tibial Attachments of Crucial Ligaments: Treatment by Operative Reduction. H. G. Lee, Boston.—p. 460.
Technic for Lessening Hemorrhage in Operations on Spine. G. Wagoner, Haverford, Pa.—p. 469.
Fractures and Dislocations of Cervical Spine: Part II. Dislocations, Complications and Operative Treatment. S. M. Roberts, Boston.—p. 477.
Conservative Method of Correcting Flexion Deformity of Knee Complicated by Posterior Luxation of Tibia. M. T. Horwitz, Philadelphia.—p. 522.
Multiple Sesamoids of Hands and Feet. R. F. Patterson, Knoxville, Tenn.—p. 531.
Ewing's Sarcoma: Atypical Case with Necropsy Findings. H. Charache, Brooklyn.—p. 533.

Rib-Splinter Graft for Vertebral Tuberculosis.—During the last few years Petter has performed osteosynthesis of the spine in thirty individuals with tuberculosis of the vertebrae, employing the operative technic described by Henry and Geist and including fusion of the vertebral articulations recommended by Hibbs. Practically all of this group, at the time of operation, had been confined to bed for many months because of the complexity of the lesions. In the entire series the operative mortality was zero. However, one disquieting event did occur in almost every case: when the bone chips for the graft were removed from the tibia a state of shock developed when the hammering was begun. Because of this complicating factor, the rib was used instead of the tibia. The preparation of the graft bed was carried out in the same manner as before, but the rib graft was placed in the form of splinters. Three cases have been so treated, and, although the postoperative period of observation is relatively short (five, four and three months), the author feels that the results warrant a report. Since most patients with vertebral tuberculosis must be treated by pro-

longed recumbency, immediate strength of graft is not of importance. Therefore, solid rib or tibial grafts, anchored to the laminae and the spinous processes, are not, in the author's opinion, of as much value as a graft which in itself will resist little if any strain, but which later develops into a thick plate of solid bone, extending well out on the laminae laterally and from the spinous process of the second or third healthy vertebra above and below the diseased area. Solid cortical grafts, then, present immediate strength but a low-grade proliferative power, while rib splinters, composed of fine periosteal shreds, cortex and endosteum, possess a high degree of osteogenic ability, although they offer little early support.

Journal of Lab. and Clinical Medicine, St. Louis

22: 657-766 (April) 1937

- Concerning Identity of Antibody in Experimental Anaphylaxis and That Occurring in Man Naturally or Spontaneously Sensitized. A. H. W. Caulfield, M. H. Brown and E. T. Waters, Toronto.—p. 657.
- Study of Heat Sensitivity of Meningococcus in Vitro Within Range of Therapeutic Temperatures. L. Mary Moeck, New York.—p. 665.
- Urea and Chlorides in Human Parotid Saliva: Changes at Different Rates of Secretion as Affected by Atropine and Pilocarpine. R. G. Bramkamp, Banning, Calif.—p. 677.
- Papillomas of the Breast: Study of 273 Specimens. D. H. Kaump and A. E. Mendes-Ferreira, Rochester, Minn.—p. 681.
- *Pulmonary Moniliasis: Report of Fatal Case. A. H. Davis and E. L. Warren, Paterson, N. J.—p. 687.
- Creatinuria in Scleroderma. E. Epstein and S. Ayres Jr., Los Angeles.—p. 697.
- Visible Action of Sodium Lauryl Sulfate on Micro-Organisms. M. Bayliss, Omaha.—p. 700.
- Influence of Sodium Amytal on Blood and Urine Urea Nitrogen. J. L. Gouaux, Shirley C. Cordill and A. G. Eaton, New Orleans.—p. 704.
- Sporotrichosis Among Violinists. E. Hope, Sioux City, Iowa.—p. 708.
- Action of Mammary Gland on Ovary: Preliminary Report. T. H. Cherry, New York.—p. 711.
- Calibration of Micropipets and Tubes Simplified. Lillias D. Francis, New Haven, Conn.—p. 718.
- Growth of Bacteria from Blood Stream in Desfibrinated Blood. Anna Dean Dulaney and Frances Guthrie, Memphis, Tenn.—p. 721.
- Mantles for Berkefeld and Mandler Filters: Note. S. B. Rose, Philadelphia.—p. 723.
- Simple Mechanical Device for Shaking Blood Cell Counting Pipets. C. Olson, Rochester, Minn.—p. 724.
- Simple Method for Obtaining Effective Anaerobiosis. J. E. Weiss and E. H. Spaulding, New Haven, Conn.—p. 726.
- New van den Bergh Reaction for Determination of Serum Bilirubin Utilizing Photometer. A. E. Osterberg, Rochester, Minn.—p. 729.
- Polychromed Methylene Blue as Constituent of Romanowsky Stains. D. M. Kingsley, New Orleans.—p. 736.
- Method of Obtaining Biopsy Specimens of Sternal Bone Marrow by Use of Spinal Needle. G. L. Weller Jr., Washington, D. C.—p. 752.

Pulmonary Moniliasis.—Davis and Warren review the literature and cite a fatal case of pulmonary moniliasis due to *Monilia albicans*. The strain of *Monilia albicans* isolated from the sputum of the patient was subjected to different environments and the reactions on nutrient broths, each containing 1 per cent mannose, maltose, dextrin, lactose, dextrose, galactose, mannite, saccharose, levulose, dulcitol, rhamnose, arabinose and xylose were determined. Their observations definitely prove that the reaction of this strain of *Monilia* was constant on all the sugars. *Monilia* was found to be pathogenic for rabbits when injected intravenously and for white mice when injected subcutaneously or intraperitoneally but was not pathogenic for guinea-pigs when 1 cc. of sputum containing the organisms was injected intraperitoneally.

Journal of Nutrition, Philadelphia

13: 339-452 (April) 1937

- Gizzard Factor of the Chick. H. J. Almquist and E. L. R. Stokstad, Berkeley, Calif.—p. 339.
- Effect of Low Fat Diets on Serum Lipids of Rats. A. E. Hansen and W. R. Brown, Minneapolis.—p. 351.
- Review: Recent Studies of Vitamins Required by Chicks. T. H. Jukes, Davis, Calif.—p. 359.
- Identity of Flavin with Cataract-Preventive Factor. P. L. Day, W. J. Darby and W. C. Langston, Little Rock, Ark.—p. 389.
- Protein Minima for Nitrogen Equilibrium with Different Proteins. D. Melnick and G. R. Cowgill, New Haven, Conn.—p. 401.
- Vitamin B and Vitamin C Content of Marine Algae. E. R. Norris, Mary K. Simeon and H. B. Williams, Seattle.—p. 425.
- *Multiple Nature of Vitamin D of Fish Oils. C. E. Bills, O. N. Massen-gale, Miriam Imboden and Helen Hall, Evansville, Ind.—p. 435.
- Multiple Nature of Vitamin D of Fish Oils.**—Bills and his co-workers compared the liver oils of twenty-five species of fish with cod liver oil by assay on rats and chickens. The relatively least effective oils were those from bluefin tuna

of California, oriental tuna, striped tuna, bonito, albacore and totuava. The relatively most effective oil was that from the white sea bass of California. The maximum observed difference in relative effectiveness was about eighteen times, a difference much greater than the probable errors of assay. The differences were due to the existence of two or more forms of vitamin D in the oils. The possible relation of the vitamin D in the fish oils to certain artificial forms, particularly viosterol and irradiated 7-dehydrocholesterol, is discussed. The relative effectiveness of viosterol was lower than that of any fish oil, about the same as that of cod liver oil or irradiated ordinary cholesterol but inferior to that of white sea bass liver oil. Oils of related species, particularly the several tunas, differed widely in relative effectiveness.

Journal of Pharmacology & Exper. Therap., Baltimore

59: 359-484 (April) 1937

- Adrenal Cortex Extract in Canine Anaphylactic Shock. C. A. Dragstedt, M. A. Mills and F. B. Mead, Chicago.—p. 359.
- Pharmacologic Study of a New Drug: Diphenylacetyl-diethylaminoethanol-ester-Hydrochloride. J. R. Johnson and S. R. M. Reynolds, Brooklyn.—p. 365.
- Determination of Barbiturates in Blood and Urine by a New Method. J. T. Brundage and C. M. Gruber, Philadelphia.—p. 379.
- Study of Acquired Resistance of Fixed Tissue Cells Morphologically Altered Through Processes of Repair: IV. Concerning Persistence of an Acquired Type of Atypical Liver Cell with Observations on Resistance of Such Cells to Toxic Action of Chloroform. W. De B. MacNider, Chapel Hill, N. C.—p. 393.
- Local Anesthetics Derived from Alkaloid Cytisine. H. R. Ing and R. P. Patel, London, England.—p. 401.
- Absorption of Acetyl- β -Methylcholine Chloride (Mechoyl) by Nasal Mucous Membrane. T. R. van Dellen, M. Bruger and I. S. Wright, New York.—p. 413.
- *Chronic Toxicity of Dinitrophenol: Functional and Morphologic Changes in the Liver. T. L. Schulte, San Francisco.—p. 419.
- Effects of Arsenicals on Trypanosoma Cruzi in Tissue Culture. C. A. Kofoid, Ethel McNeil and Fae D. Wood, San Francisco.—p. 424.
- Peptone Shock. C. A. Dragstedt and F. B. Mead, Chicago.—p. 429.
- Chronic Acetanilid Poisoning in the Albino Rat: Experimental Study of Addiction and Tolerance. E. J. Stanton and W. R. Agricola, Cleveland.—p. 437.
- Synergic Calorigenic Actions of Epinephrine and Dinitrophenol. V. E. Hall and P. E. Chamberlin, Stanford University, Calif.—p. 451.
- Some Effects of Bulbocapnine on Peripheral Vascular System. C. E. Leese and Alma Fogelberg, Washington, D. C.—p. 458.
- Vitamin C and Diphtheria Toxin. A. Sigal and C. G. King, Pittsburgh.—p. 468.

Chronic Toxicity of Dinitrophenol.—Schulte administered alpha dinitrophenol orally to dogs for periods of 175 days in doses up to 26 mg. per kilogram daily. The doses, which were sufficient to produce subacute poisoning and eventual death, did not demonstrably affect the function of the liver as indicated by galactose and uric acid tolerance tests. Pathologic examination revealed no lenticular opacities, and the livers were essentially no different from those of unmedicated dogs kept under similar conditions. These results confirm and extend previous negative results and show that continued medication with high doses of dinitrophenol does not result in dogs in demonstrable impairment of the functional capacity of the liver according to a variety of tests.

Journal of Thoracic Surgery, St. Louis

6: 355-476 (April) 1937

- Nervous Control of Respiration. P. Heinbecker, St. Louis.—p. 355.
- Variations in the Ages, Sizes and Physical Characteristics of the Main Bronchi in Relation to Their Closure. C. E. Bird, Louisville, Ky.—p. 367.
- Tumors of Chest Derived from Elements of Nervous System. W. D. Andrus, New York.—p. 381.
- Experimental Production of Bronchiectasis: Study Based on Pulmonary Changes Occurring with Bronchial Obstruction. J. Weinberg, Omaha.—p. 402.
- Conservation of First Rib in Apicolytic Thoracoplasty: Procedure and Advantages. H. Lilienthal, New York.—p. 414.
- *Phrenic Interruption in Treatment of Pulmonary Tuberculosis: Five Year Study and Follow Up. B. P. Potter, F. B. Berry and F. Bortone, Secaucus, N. J.—p. 424.
- Difficulties of Thoracoplasty and Uncollapsible Cavities. I. S. Welles, Saranac Lake, N. Y.—p. 450.
- Thoracoscopic Removal of Broken Aspiring Needle: Case Report. C. H. Andrews, Prince Albert, Sask.—p. 456.
- *One-Stage Pneumonectomy Under Local Anesthesia: Successful Case Reported. W. E. Burnett, Philadelphia.—p. 458.
- Phrenic Interruption in Treatment of Tuberculosis.**—Potter and his associates relate their observations in ninety-five cases in which phrenic interruption was performed and

which were followed from one to five years postoperatively. The operation was used as an independent procedure in sixty-eight cases, as a supplement to ineffective pneumothorax in twelve and for miscellaneous reasons in fifteen. The contraindications for diaphragmatic paralysis are huge cavities, thick-walled cavities and cavities embedded in a fibrous infiltrate, peripherally located adherent cavities, lesions within a lung surrounded by a thick pleura, and multiple cavities. Favorable results can be expected in small or moderate-sized cavernous lesions with a surrounding zone of lung tissue more or less free of infiltrate. A cavity within a shrinking lobe which has ceased to contract further is an indication, provided the infiltrative process about the cavity is not extensive and provided the latter has shown diminution from the original size along with the contraction of the lobe. Of the sixty-eight cases in which the operation was used independently, thirty-eight were found suitable in retrospect. Closure of the cavity occurred in 47 per cent of this group and reduction in the size of the cavity with general clinical improvement in 31 per cent, and thoracoplasty was spared in 15 per cent. The average interval between operation and closure of the cavity was seven and one-half months. While the authors do not advocate the procedure unless it is definitely indicated, nevertheless they suggest that, in borderline cases, in which thoracoplasty is dangerous, a temporary interruption may turn the tide for the patient and make thoracoplasty possible. The operation, when used as a supplement for ineffective pneumothorax in selected cases in which there is a bow string effect, offers about 50 per cent success. The reduction of the intrapleural space is the chief indication for the miscellaneous uses of phrenic interruption.

One-Stage Pneumonectomy Under Local Anesthesia.

—Burnett describes a case in which pneumonectomy was successful and outlines the technic and the local anesthesia that he used for the procedure. The technic of the anesthesia was developed from extension of the field block technic for rib resection in the treatment of empyema and partial thoracoplasty. It consists of the use of 0.5 per cent procaine hydrochloride in saline solution to produce a series of wheals over the intercostal spaces, from the second to the tenth or eleventh, at the edge of the erector spinae muscle. After the first, these are made painlessly from beneath the skin. Through these wheals, injections of about 5 cc. of 1 per cent procaine hydrochloride are made into the appropriate nerves. If the incision is to be carried to the midline anteriorly, the crossed innervation from the opposite side has to be interrupted by a band of procaine hydrochloride at this point. Towel clips, used in the upper pectoral region, require additional local injection into each spot. Ten minutes after the last injection, the anesthesia is checked by the needle and finger method. If it is not complete, injections are again made into the nerves which have not been interrupted. When the chest is opened, inhalations of carbon dioxide and oxygen under pressure may be necessary to prevent sudden complete collapse. They are unnecessary if pneumothorax has previously been instituted or if the lung is extensively adherent. The injection made into the phrenic nerve in the thorax, when it is exposed, interrupts the sensory and motor diaphragmatic innervation. The pulmonary ligament and the hilus of the lung are sensitive areas, and 1 per cent procaine hydrochloride has to be injected into them. Pouring 1 per cent procaine hydrochloride over the pleura and maintaining its application with a gauze sponge saturated with the solution while one is dissecting adhesions or exploring the remainder of the thorax produces insensitivity there also. Children have been prepared by the preliminary injection of fairly large amounts of morphine in divided doses and adults by the use of one-sixth grain (10 mg.) of morphine supplemented by rectal injection of tribrom-ethanol, from 40 to 60 mg. per kilogram, depending on the type of person. Under these circumstances, the cough reflex is not abolished, although it is definitely decreased. The disadvantages of this method are the same as those for most operations with local anesthesia. The advantage is that for the same procedure the amount of shock is greatly decreased or a more extensive procedure is possible, at a one stage operation, than is possible with anesthesia by inhalation. The difficulty of certain complicated types of administration of anesthesia are avoided. The operator is able to work accurately and without haste; the cough reflex

for expulsion of pus or blood as the lung is manipulated is maintained, and there is considerable improvement in immediate postoperative convalescence.

Military Surgeon, Washington, D. C.

80: 251-330 (April) 1937

- The Physician's Reading. L. B. Wilson.—p. 251.
War Service with an Evacuation Hospital. J. R. Darnall.—p. 261.
Why Attend Medical Meetings? B. A. Moxness.—p. 276.
Serum Treatment in Lobar Pneumonia. A. Carbonell and E. P. Campbell.—p. 280.
The Common Cold. F. J. Vokoun.—p. 285.
Medicomilitary Possibilities of Cystometry and Sphincterometry: Studies in Bladder Function V. W. Bisher.—p. 287.
Multiple Myeloma with Diffuse Skeletal Involvement: Case Report. R. G. Prentiss Jr.—p. 294.
Medical Administrative Corps. C. V. Lewis.—p. 299.
What England and Canada Are Doing for the Disabled War Veterans. F. C. Kidner.—p. 305.
Eighth Annual Mayo Foundation Medicomilitary Training Unit. N. G. Long.—p. 309.

Missouri State Medical Assn. Journal, St. Louis

34: 109-146 (April) 1937

- Regional Enteritis. L. H. Pollock, Kansas City.—p. 109.
Technic of Radical Hemorrhoidectomy: Procedure with Elimination of Element of Pain. S. E. Newman, St. Louis.—p. 114.
Prostatic Hypertrophy as Definite Endocrine Problem. V. H. Bergmann, Kansas City.—p. 119.
Epidemic Pleurodynia in Chariton County. G. W. Hawkins and F. L. Harms, Salisbury.—p. 121.
Impetigo Contagiosa. H. A. Dunaway, Sikeston.—p. 122.

New England Journal of Medicine, Boston

216: 587-636 (April 8) 1937

- Haemophilus Influenzae (Pfeiffer Bacillus) Meningitis and Its Specific Treatment. L. D. Fothergill, Boston.—p. 587.
Pharyngo-Esophageal Diverticulum: Analysis of Fifty-Three Consecutive Operative Cases. F. H. Lahey and W. B. Hoover, Boston.—p. 591.
Coincidence of Chicken Pox and Lymphatic Leukemia: Report of Case. A. A. Holbrook, Milwaukee.—p. 598.
Chronic Sinusitis in Children. H. B. Marks, Pawtucket, R. I.—p. 604.

216: 637-680 (April 15) 1937

- *Exstrophy of the Bladder. W. E. Ladd and T. H. Lanman, Boston.—p. 637.
Arthroplasty of the Elbow. S. M. Roberts and R. J. Joplin, Boston.—p. 646.
Interstitial Pregnancy Ruptured Through a Tubal Stump. E. D'Errico, Boston.—p. 654.
Double Kidney Pelvis, and Nonfusion of Laminae of the First and Fifth Lumbar Vertebrae in Each of Twins. R. A. Harpin, Boston.—p. 658.

Exstrophy of the Bladder.—Ladd and Lanman describe a three stage ureterosigmoidostomy that they used in fifteen cases of exstrophy of the bladder. The best time for the operation is between the ages of 3 and 5 years. The patient should have several days of hospitalization before the first operation. Intravenous pyelograms, determinations of the nonprotein nitrogen and tests with phenolsulfonphthalein should be made. The patient should have a low residue diet and should be given a saline solution enema daily. Dextrose should be given in generous amounts for forty-eight hours prior to the operation. Tribrom-ethanol, 80 mg. per kilogram, supplemented by gas and oxygen and a little ether, seems to be the anesthetic of choice. The clamped rectal tube, which is used for the administration of the tribrom-ethanol, is left inserted in the rectum. The exstrophied bladder is carefully walled off with sterile gutta-percha before the patient is draped. The right ureter is transplanted first. It is freed from its bed down almost to the bladder, where it is tied and cut off with the actual cautery or with an electric knife, and the distal end is allowed to drop back behind the peritoneum. The sigmoid is then brought over so that the proper position of the line of implantation can be judged. This should be made so that its proximal end will lie close to the proximal end of the freed ureter as it leaves its retroperitoneal bed. The rectal tube is then unclamped, the sigmoid is milked to express gas and liquid contents, and right angle intestinal clamps are applied. An incision through the serous and muscular coats in the line previously ascertained is made for from 2½ to 3 inches (6.2 to 7.6 cm.). The ureter, with a temporary, inflying catheter, is placed on this submucosa in such a way that it will not kink. A sufficient amount of the ureter is cut off so that, when it is in place, it is neither on tension nor kinked. A longitudinal cut is made in the posterior wall of the ureter to prevent its orifice from

ever becoming constricted. A double-ended suture is placed in the end of the ureter from within outward to evert it. The mucosa of the intestine is opened with the electric knife and the ureter is carried into the lumen of the sigmoid by the double-ended suture, which pierces all layers of the bowel from within outward and is tied holding the ureter in place. The two rows of sutures are next completed. The sigmoid is next stitched with interrupted silk stitches to the medial side of the peritoneal incision that exposed the ureter. When this step is completed the lateral side is stitched, making the whole line of anastomosis extraperitoneal. The abdominal wound is closed without drainage. Two weeks or so later the left ureter is implanted into the sigmoid in a similar manner. The site of the second transplant can be chosen higher up in the sigmoid so that neither the sigmoid nor the two transplants will be kinked or strained. The administration of large amounts of fluid after the operation is essential. The extrophied bladder should be removed by an elliptic incision made in the skin close to the mucous border and the dissection of the mucous membrane and part of the musculature. The dissection is carried down to a point in the region of the verumontanum, in the male, so as to save the ejaculatory ducts. The resulting space may be largely covered by suturing the edges of the anterior rectus fascia together and by closing the skin over these edges. In the male a plastic operation on the epispadias should be performed later. In the female the vagina, uterus and adnexa are usually present and normal. In the authors' series no mortality followed the cystectomy, and herniation through the cleft abdomen has not been a matter of concern. In fourteen of the fifteen cases, urine appeared within forty-eight hours and usually within twenty-four hours after the initial transplant. Control of the intestine for from three to four hours during the day was obtained in nearly all cases within three weeks or less after operation.

New York State Journal of Medicine, New York

37: 719-840 (April 15) 1937

- Iodized Oil Technic in Pterygium Cases. T. J. Dimitry, New Orleans.—p. 719.
Serum Therapy for Pneumococcus Type I Pneumonia. J. G. M. Bullowa, New York, and M. J. Hanigsberg, Brooklyn.—p. 723.

Northwest Medicine, Seattle

36: 111-148 (April) 1937

- Congenital Malformation of Bile Ducts: Report of Case with Severe Hemorrhagic Manifestations with Recovery. J. B. Bilderback, W. H. Buermann and S. H. Goodnight, Portland, Ore.—p. 111.
Severe Burns Complicated by Appendicitis. H. W. Rose, Seattle.—p. 113.
Role of Biopsy in Diagnosis. C. R. Jensen, Seattle.—p. 114.
Diagnosis of Ectopic Pregnancy. M. F. Fuller, Aberdeen, Wash.—p. 118.
Control of Pregnancy Toxemias by Adequate Prenatal Care. J. D. Kindschi, Portland, Ore.—p. 121.
*Importance of Kidney Function in Alkalosis. E. H. Berger, Portland, Ore.—p. 125.
Urinary Obstruction. W. L. Ross Jr., Yakima, Wash.—p. 129.
One Hundred Years of Progress in Medicine. H. M. F. Behneman, San Francisco.—p. 133.

Importance of Kidney Function in Alkalosis.—Berger studied seven cases in which there were definite symptoms and chemical evidence in the blood of alkalosis following intensive use of alkali in the treatment of peptic ulcer. None of the patients gave a previous history of nephritis. Mild to moderate anemia was present in each case except two. Treatment consisted in some cases of either discontinuing the administration of alkaline powders or reducing the amount. In the rest tribasic calcium phosphate and, in one case, mucin were substituted as needed for the relief of distress. Fluids were forced by mouth, and a 10 per cent solution of dextrose and 1 per cent saline solution were administered intravenously. Operative procedures were subsequently carried out on four patients. Studies of the renal function were carried out on each at the time alkalosis was first diagnosed. One week or more later, when the blood urea and carbon dioxide were normal, renal studies were again repeated. After the alkalosis was relieved, evidence of impaired renal function was found to be present in two patients. The other two had normal renal function. The possibility of alkalosis in the treatment of peptic ulcer should be kept constantly in mind. The phenomenon usually comes

on gradually. Apparently no relation exists between the amount of alkali ingested and the onset of alkalosis. The symptoms of distaste for milk, the patient claiming that it is sour, of headache and of weakness are constant, and they occur early. They are noted in the period of compensated alkalosis prior to the characteristic changes in blood chemistry that follow. Unless these symptoms are appreciated and the condition recognized, the condition will progress and may go on to convulsions and even coma. Impaired renal function was demonstrated in all the cases during alkalosis. The status of the kidneys should be determined in each case before the patient is placed on alkaline powders. The renal excretion of sulfates is a sensitive index of renal function. It is not implied that alkalosis cannot occur unless there is previous renal injury but rather that in the presence of renal insufficiency the threshold of safety is less, and not only that alkalosis is produced more easily in the presence of a preexisting renal injury but also that renal injury is increased concurrently with alkalosis, a vicious cycle being set up. Neither basic nor acid salts can be administered with impunity in the presence of renal impairment. In the presence of normal renal function, the buffer mechanism maintaining the acid-base equilibrium can absorb the assault of either acidifying or basic salts with little or no variation. The liver plays an important part in maintaining the acid-base equilibrium and in the presence of hepatic insufficiency is disturbed much more easily, as is evidenced by the intolerance in cases of cirrhosis to ingestion of either acid or basic salts.

Ohio State Medical Journal, Columbus

33: 357-488 (April) 1937

- Obstructions at Bladder Neck in Men, Women and Children. J. R. Caulk, St. Louis.—p. 373.
Present Status of Pituitary Gland in Clinical Medicine. E. P. McCullagh, Cleveland.—p. 379.
Endometriosis. R. C. King, Toledo.—p. 390.
Biologic Test for Determination of Fibrogenetic Properties of Dust. C. P. McCord, J. A. Kasper and W. L. Brosius, Detroit.—p. 394.
Chronic Uveitis: Etiology and Newer Methods of Treatment. A. A. Levin, Cincinnati.—p. 397.
Unconscious Motivation of Criminal Behavior. A. D. Finlayson, Cleveland.—p. 401.
Rubella: Report of an Epidemic with an Unusual Number of Complications and Relapses. T. F. Humphrey, Dayton, and E. W. Eker-meyer, Xenia.—p. 406.
Medical Management of Chronic Gallbladder Disease. E. A. Marshall, Cleveland.—p. 409.

Psychoanalytic Quarterly, Albany, N. Y.

6: 1-138 (Jan.) 1937

- Depersonalization as Defense Mechanism. D. Feigenbaum, New York.—p. 4.
Absence of Grief. Helene Deutsch, Boston.—p. 12.
Reality and the Unconscious. T. M. French, Chicago.—p. 23.
Reality Testing in Dreams. T. M. French, Chicago.—p. 62.
Balzac's Père Goriot. M. L. Miller, Chicago.—p. 78.
Regression in Case of Multiple Phobia. E. R. Eisler, Chicago.—p. 86.
Defense Mechanisms and Structure of the Total Personality. Therese Benedek, Chicago.—p. 96.

Radiology, Syracuse, N. Y.

28: 391-520 (April) 1937

- Why Pneumoperitoneum? I. F. Stein, Chicago.—p. 391.
Comparison of Use of Transuterine Insufflation with Carbon Dioxide and Roentgenograms Taken After Injection of Iodized Oil. L. M. Randall, Rochester, Minn.—p. 399.
Roentgenography in Obstetrics. J. B. Jacobs, Washington, D. C.—p. 406.
*Value of Hysterosalpingography in Gynecologic Diagnosis. A. Mathieu, Portland, Ore.—p. 427.
*Carcinoma of the Bronchus. L. H. Clerf, Philadelphia.—p. 438.
Primary Bronchial Carcinoma and Pulmonary Metastasis Compared Clinically and Roentgenologically. J. T. Farrell Jr., Philadelphia.—p. 445.
Roentgenographic Unsharpness of the Shadow of a Moving Object. S. R. Warren Jr., Philadelphia.—p. 450.
The Congenital Heart: Radiologic Study, with Seven Reported Cases. J. Friedman, New York.—p. 466.
Determination of Nasofrontal Suture and the Nasion in the Living. M. F. Ashley-Montagu, New York.—p. 473.
Deep Therapy Table with Tube Stand Combined and Revolving in Arc About the Table: Intensity Distribution Within Paraffin Pelvis for Various Ports of Entry. N. Flax, Covington, Ky.—p. 477.

Hysterosalpingography in Gynecologic Diagnosis.—Mathieu believes that hysterosalpingography is as valuable and as welcome as visualization of the bronchial tree or the urinary

tract. Few untoward effects have been reported in the literature; most of those that have been reported were due to faulty technic. If one uses good technic and avoids the maneuver in the presence of active infection or normal pregnancy, it offers a maximum of results in diagnosis as it pertains to the cavities of the uterus and tubes with a minimal amount of discomfort. If more hysterosalpingograms are taken, fewer hysterectomies will be performed when curettage will suffice, and fewer curettages will be done when hysterectomy is necessary. The most valuable field for hysterosalpingography is in the study of sterility, wherein it is important to decide whether or not the tubes are patent and to determine the position and the nature of obstructions. In several of the author's patients, pregnancy followed soon after the injection of iodized oil when this was the only procedure done that might have had a corrective value. In such cases it is reasonable to assume that the tube was actually opened in some way by the process.

Carcinoma of the Bronchus.—Clerf declares that if there is to be any advance in the surgical treatment of bronchial carcinoma it will depend almost entirely on arriving at a correct diagnosis early in the disease. This responsibility rests primarily with the clinician, who should be "cancer of the bronchus minded" as well as "roentgen-ray minded." When cancer is a diagnostic possibility, it is important to arrive promptly at a diagnosis. No group of symptoms or signs can be considered diagnostic of carcinoma; they are dependent on the location of the growth and its influence on adjacent structures. The early symptoms are important, as their correct interpretation will lead to early diagnosis. A diagnosis made when the carcinoma is advanced is of statistical value only; from the patient's standpoint it is of little or no importance. Cough with or without sputum has been the most common early symptom of carcinoma involving the larger bronchi. If associated with blood-streaked mucoid sputum in the absence of tuberculosis, it is highly suggestive of bronchial neoplasm. A wheeze in conjunction with cough and occasional blood-streaked sputum or absence of sputum constitutes strong evidence that new growth is producing early partial obstruction to a bronchus. Pain is not a common early manifestation of carcinoma originating in the larger bronchi. It is, however, considered "the most common signal symptom" of peripheral carcinoma and is due to peripheral extension of the growth to the pleura and extrapleural structures. Dyspnea, pleural effusion, loss of weight, weakness, fever and sweats, dysphagia, hoarseness, pupillary changes and engorgement of the veins of the neck and chest are commonly evidences of advanced disease and are principally of didactic interest. Difficulty in diagnosis is encountered in cases in which the changes are suggestive of tuberculosis, pneumonitis, bronchiectasis or pulmonary abscess without roentgenographic evidences of tumor or bronchial obstruction. Since more than 50 per cent of primary bronchial neoplasms originate in the larger bronchi, it is evident that in many cases during the early stages there is partial obstruction to a bronchus, with obstructive emphysema. Roentgenoscopic examination of the chest and a study of the roentgenograms made at the end of full inspiration and expiration aid greatly in the recognition of nonopaque foreign bodies in the bronchus and a knowledge of the mechanism of obstructive emphysema. Bronchoscopy is the most definite and positive diagnostic procedure available. One may obtain a direct endoscopic view of the growth; in addition, tissue may be secured for histologic examination. If no intrusion of growth into the bronchus can be visualized, one may observe evidences of infiltration of the bronchial wall, fixity and rigidity. The bronchoscopist should be given an opportunity to investigate endoscopically all cases of obstructive emphysema or obstructive atelectasis. Unexplained cough, hemoptysis and wheeze also warrant bronchoscopy.

Tennessee State Medical Assn. Journal, Nashville

30: 119-152 (April) 1937

- Rheumatic Fever in Children: Report of Case. R. F. Thomas, Sevierville.—p. 119.
Coronary Artery Disease with Unusual and Dramatic Sequels. D. D. Vance, Bristol.—p. 124.
Repair of Old Lacerations at Time of Delivery. W. T. Pride, Memphis.—p. 127.
Intestinal Obstruction (Acute Mechanical): Observations Suggested by Recent Publications. R. A. Barr, Nashville.—p. 132.

Texas State Journal of Medicine, Fort Worth

32: 789-868 (April) 1937

- Prevention and Treatment of Puerperal Infection. C. R. Hannah, Dallas.—p. 794.
Conduct of Late Second Stage of Labor with Low Forceps. M. J. Meynier Jr., Houston.—p. 798.
Trichomonas Vaginalis Vaginitis Pathognomonic Lesion and Pathologic Findings in 4,000 Cases. K. J. Karnaky, Houston.—p. 803.
Treatment of Gonorrheal Vaginitis in the Young Female. C. B. Sacher, Dallas.—p. 809.
Comparison of Hypertrophied Anal Papillae and Rectal Polyps. V. C. Tucker, San Antonio.—p. 810.
Fibrosarcoma of Soft Tissues of Extremities. R. Hargrave, Wichita Falls.—p. 815.
Hypocalcemia of Parathyroid Origin. R. E. Maresh, Houston.—p. 819.
Precaution Against Hemorrhage and Infections Following Intranasal Operations. C. J. Boels, San Antonio.—p. 824.

West Virginia Medical Journal, Charleston

33: 145-192 (April) 1937

- Perineorrhaphy, with Note on Longitudinal Knotless Sutures. P. Rucker, Richmond, Va.—p. 145.
Influence of Ductless Glands on Character. R. Kessel, Charleston.—p. 153.
Renal Disorders in General Practice. A. E. Goldstein, Baltimore.—p. 161.
The Problem of Headache. L. C. McGee, Elkins.—p. 166.
Massive Edema of Vulva. C. S. Bickel, J. O. Howells and J. S. Meier, Wheeling.—p. 171.

Wisconsin Medical Journal, Madison

36: 233-328 (April) 1937

- Problems of the Deaf. T. L. Tolan, Milwaukee.—p. 247.
Some Clinical Problems in Refraction. A. deH. Prangen, Rochester, Minn.—p. 252.
Orthoptic Treatment of Strabismus. J. B. Hitz, Milwaukee.—p. 258.
*Problems Involved in Diagnosis and Treatment of Malignancies of Nasal Accessory Sinuses. F. L. Lederer, Chicago.—p. 263.
Some Factors in the Etiology of Iritis. L. A. Copps and G. L. McCormick, Marshfield.—p. 268.
Use of Vaccines and Serums in Diagnosis, Prevention and Treatment of Disease. J. E. Gonce Jr., Madison.—p. 275.

Malignant Growths of Nasal Accessory Sinuses.—Lederer believes that a malignant neoplasm of a nasal sinus is seldom if ever confined within a mathematically calculable area. By virtue of the characteristically slow growth of a neoplasm within a bony cavity it is observed as such at a time when it falls within the classification of inoperability; that is, when the diagnosis finally becomes self evident. Unfortunately, inspection, auscultation and palpation, anterior and posterior rhinoscopy, endoscopy, transillumination, roentgen examination and biopsy do not always facilitate a conclusive diagnosis in early cases. Furthermore, confusing clinical pictures are produced by intercurrent or coexisting diseases, particularly by those which cause swellings about the maxilla and orbit. Syphilis and tuberculosis may obscure the diagnosis of cancer, thereby delaying proper therapy. Peculiar histologic responses of the various tissues to tumor growth and infection may also hinder a correct diagnosis. The development of sinus cancer is slow, metastasizing infrequently. There is a definite tendency of such tumors to invade the meninges and other intracranial structures. While the symptoms usually vary, in the main the points to be noted are unilateral nasal obstruction, mucopurulent or serosanguineous discharge, headaches (usually frontal), nasal hemorrhage, fetor, cranial nerve involvement consisting of sensory disturbances (neuralgic-like pains, paresthesia and anesthesia), ocular disturbances (proptosis, limitation of motion, papillitis and atrophy), olfactory disturbances (anosmia and parosmia) and external deformity. Surgery, electrosurgery and irradiation combined have given fair results in malignant tumors of the nasal sinuses, especially those of the antrum, in spite of the fact that 80 per cent have been termed inoperable because of invasion of vital structures. Malignant growths of the frontal sinus if seen in time may be operable, in which case the sinus should be exposed widely through the external route. Cosmetic results should not enter into consideration. As much of the mass is removed as is possible and the remainder is coagulated by surgical diathermy. If the dura is invaded, the frontal lobe is to be exposed fully. The skin flaps are sutured to one side and the wound is left wide open for contact radium applications. Radium may be used in this region with impunity because the dura is quite resistant.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

21: 161-224 (April) 1937

- Stereoscope in Theory and Practice, Also a New Precision Type Stereoscope. E. Krinsky.—p. 161.
Trachoma. R. E. Wright.—p. 198.
Lymphosarcoma of Eyelid. V. M. Métivier.—p. 202.
Modification of Bowman's Lacrimal Probe. E. J. Somerset.—p. 207.

British Medical Journal, London

1: 595-650 (March 20) 1937

- Medicinal Kaolin in Food Poisoning: Critical Survey. N. Mutch.—p. 595.
*Infectious Mononucleosis (Glandular Fever) and Monocytic Leukemia. M. C. G. Israëls.—p. 601.
Terminal Caseating Tuberculous Bronchopneumonia in Which Date of Onset Was Known. C. E. H. Turner.—p. 604.
Carcinoma of Bronchus in a Boy Aged Nineteen. J. G. Hailwood.—p. 606.
Industrial Aspect of Fractures of Os Calcis. B. McFarland.—p. 607.
Three Separate Causes of Antepartum Hemorrhage Occurring Simultaneously. P. J. Ganner.—p. 610.

Infectious Mononucleosis and Monocytic Leukemia.—Israëls describes a case of monocytic leukemia and contrasts its clinical and hematologic features with those of two notably dissimilar cases of infectious mononucleosis. Case 1 is typical of monocytic leukemia, case 3 is characteristic of glandular fever, while case 2 shows features of both. In characteristic cases, such as cases 1 and 3, the differential diagnosis presents little difficulty. The patient with acute leukemia is severely ill, there is marked anemia, and a high proportion of the leukocytes are recognizably immature. The patient with glandular fever has an illness which is clinically mild, there is no anemia of any significance, and although there is a mononucleosis only a small proportion of the cells can be interpreted as immature. In less typical cases the diagnosis may present great difficulty. Both conditions may show pyrexia, enlarged lymph glands and an enlarged spleen. Lesions of the mouth and sore throat, not part of a leukemic syndrome, may be accompanied by a mononucleosis. Case 2 shows that hemorrhage and anemia may occur in infectious mononucleosis as well as in leukemia; but the anemia of acute leukemia, except in the early stages, is usually more severe. The total white cell count is no guide; the majority of cases of acute leukemia have white cell counts of less than 40,000 per cubic millimeter and many are less than 10,000 per cubic millimeter. The morphology of the mononuclears is, however, usually very helpful, and this, together with the clinical impression of the illness, are the most useful points. The "heterophile antibody" tests introduced by Paul and Bunnell (1932 and 1933) also seem to be promising.

Glasgow Medical Journal

9: 105-156 (March) 1937

- *Obstructive Anuria. A. Jacobs.—p. 105.
Posttraumatic Painful Osteoporosis (Sudeck's Atrophy). D. S. Middleton.—p. 115.

Obstructive Anuria.—Jacobs reports seven cases of obstructive anuria in which early recognition and treatment of the responsible lesion resulted in recovery. Five of these patients had previously been subjected to a nephrectomy, carried out for advanced calculus disease in four and for renal tuberculosis in one. In one of the patients spontaneous recovery ensued after expelling a stone from the left ureter: reflex anuria. In the seventh case, in which the anuria was apparently of traumatic origin, complete urologic investigation failed to establish the presence of a second kidney. Nephrostomy was carried out in five instances. In two this was a temporary measure, but in the other three the kidney was permanently drained by this method. During the last few years the author has found an increasing field of usefulness for this operation, not only in dealing with the crisis of anuria, but as a temporary measure of deviating the urinary stream when operating for such conditions as massive renal calculus, bilateral calculus disease and hydronephrosis.

Journal of Anatomy, London

71: 319-420 (April) 1937

- Projection of Medial Geniculate Body to Cerebral Cortex in Macaque Monkey. A. E. Walker.—p. 319.
Experimental Investigation of Cerebral Hemispheres of *Lacerta Viridis*. F. Goldby.—p. 332.
Narial Margins in Man. E. H. Johnson.—p. 356.
Cheek Bones in Teleostome Fishes. T. S. Westoll.—p. 362.
*Ossification of Human Frontal Bone, with Especial Reference to Its Presumed Prefrontal and Postfrontal Elements. V. T. Inman and J. B. de C. M. Saunders.—p. 383.
Interosseous Muscles of the Hand. C. R. Salisbury.—p. 395.
Sheath of Rectus Abdominis. R. Walmsley.—p. 404.

Ossification of Human Frontal Bone.—Inman and Saunders give a historical review of the literature on the ossification of the frontal bone and its accessory centers. Observations were made on a total of ninety-eight fetal skulls ranging in age from the sixth week of intra-uterine life to the tenth month after birth. Primary centers of the frontal bone make their appearance in the superciliary region. No secondary centers of ossification have been found at any time in the frontal bone. The changes that have given rise to the error that such centers exist are considered. Attempts that have been made to homologize portions of the frontal bone with the prefrontal and postfrontal elements of premammalian skulls have been based on the presumed existence of secondary centers. As no such centers exist in the human skull, conclusions drawn on this basis must be discarded.

Journal of Laryngology and Otology, London

52: 153-232 (March) 1937

- The Problem of Early Laryngeal Tuberculosis. N. R. Blegvad.—p. 153.
The Renaissance of Otology: Joseph Toynbee and His Contemporaries. D. Guthrie.—p. 163.

Journal of Pathology and Bacteriology, Edinburgh

44: 281-516 (March) 1937

- Toxicity of Certain Chlorine Derivatives of Benzene, with Especial Reference to O-Dichlorobenzene. G. R. Cameron and J. C. Thomas, with collaboration of S. A. Ashmore, J. L. Buchan, E. H. Warren and A. W. M. Hughes.—p. 281.
Massive Necrosis ("Toxic Infarction") of Liver Following Intraportal Administration of Poisons. G. R. Cameron, W. A. E. Karunaratne and J. C. Thomas.—p. 297.
Anatomic Basis for Resistance to Pituitrin in Diabetes Insipidus. J. H. Biggart.—p. 305.
Intra-Endothelial Bodies in Vessels of the Brain and Spinal Cord in Rabbits. A. C. Coles.—p. 315.
*Study of Intestinal Flora of Children, with Especial Reference to Incidence of Coliform Bacilli in Health and in Acute Primary Gastro-Enteritis. J. W. S. Blacklock, K. J. Guthrie and I. Macpherson.—p. 321.
Observations on Activity of Bacteriophage in Group of Lactic Streptococci. H. R. Whitehead and G. J. E. Hunter.—p. 337.
Agglutinability by Trypaflavine of *Bacillus Typhosus* and Its Relation to Vi Antigen. W. Hirsch.—p. 349.
Some Cytologic Features of Vaccinial Keratitis in Rabbit. A. J. Rhodes and C. E. van Rooyen.—p. 357.
Frozen Sections of Eyes. C. L. Oakley.—p. 365.
Histology of Normal Chorio-Allantoic Membrane of Developing Chick Embryo. R. D'Aunoy and Florence L. Evans.—p. 369.
Production of Toxin by Clostridium Edematiens (*Bacillus Novyi*). L. E. Walbum and G. C. Reymann.—p. 379.
Observations on Presence of Intestinal Epithelium in Gastric Mucosa. H. A. Magnus.—p. 389.
*Occurrence of Protective Antibodies in Syphilis. A. Beck.—p. 399.
*Interference Phenomenon in Relation to Yellow Fever and Other Viruses. G. M. Findlay and F. O. MacCallum.—p. 405.
Interrelationships of *Staphylococcus Leukocidius*. H. Proom.—p. 425.
Weight of Parathyroid Glands. J. R. Gilmour and W. J. Martin.—p. 431.
Malignant Tumors of Thyroid Gland. Dorothy M. Vaux.—p. 463.
Effect of Colchicine on Normal and Neoplastic Tissues in Mice. P. A. Clearkin.—p. 469.
Changes Induced by Estrone in Bulbo-Urethral (Cowper's) Gland of Male Mouse. H. Burrows.—p. 481.

Study of Intestinal Flora of Children.—In a series of children operated on for simple appendicitis, Blacklock and his colleagues found that coliform bacilli and other organisms were practically absent from the upper part of the small intestine. Such results were also obtained from a necropsy series of nonseptic cases. In another group of children dying of parental infections, coliform bacilli were increased in the duodenum and jejunum but were less abundant than in primary acute gastroenteritis, in which the coliform incidence at these levels reached a maximum for the series. No specific infecting organism was

recovered from the gastro-enteritis cases, in which the lesions in the organs were of a toxic nature and those in the intestine usually inflammatory, though at times minimal in view of the clinical severity. The incidence of coliform bacilli in the small intestine appeared to be rather higher in infants than in older children, though the differences observed cannot be regarded as established on the figures available. In certain cases elevation of body temperature seemed to increase the incidence of coliform bacilli in the small intestine, but the observations generally showed considerable discrepancy. In acute enteritis the pH of the contents of the small intestine appeared to be slightly less acid than in normal subjects. Coliform bacteriophage was never found in the small intestine. Thus in primary gastro-enteritis the essential factor appears to be a breakdown in the normal physiologic functions, which maintain a relative sterility in the upper part of the highly absorptive small intestine. It is, however, the secondary pathologic conditions, largely toxic in nature, which dominate the clinical and postmortem observations.

Occurrence of Protective Antibodies in Syphilis.—Beck examined fifteen serums and two cerebrospinal fluids of syphilitic persons and three serums of syphilitic rabbits by a quantitative *in vivo* method for the presence of protective antibodies against the syphilis spirochete. No evidence of such antibodies was found. The negative result may be due to an insufficient specificity of the antigens used. If the syphilis spirochete varied in its antigenic structure as the relapsing fever spirochete or trypanosomes do, the failure to demonstrate antibodies might be due to the unsuitability of the antigens used. But, according to observation in man, it is not very probable that such a variability of different immunologic types of human syphilis spirochetes occurs. Unlike as in rabbits, immunity in man seems to be a "panimmunity" directed against all strains of syphilis spirochetes (Kolle, 1926). In view of the results obtained it is maintained that no protective antibodies are demonstrable in syphilis. This, and the lack of demonstrable antibodies by *in vitro* methods, reported earlier, render it improbable that immunity in syphilis is based on a humoral mechanism. It seems that, as in tuberculosis, the protection against superinfection or reinfection of the previously infected syphilitic individual depends solely on an altered mode of reaction of the tissue cell itself against newly introduced spirochetes.

Interference Phenomenon in Relation to Yellow Fever.—Findlay and MacCallum observed that rhesus monkeys inoculated subcutaneously or intraperitoneally with a mixture of neurotropic and pantropic strains of yellow fever virus survive, while control monkeys similarly inoculated with pantropic virus alone die. When the neurotropic virus is inoculated twenty-four hours after the pantropic virus, there is no protection. Intracerebral inoculation of monkeys with a mixture of neurotropic and pantropic yellow fever viruses results in death from encephalomyelitis: control monkeys inoculated intracerebrally with pantropic virus die with liver necrosis and other lesions in the viscera. The subcutaneous inoculation of men with yellow fever immune serum and mixtures of neurotropic and pantropic yellow fever viruses gives rise to reactions similar to those induced by the neurotropic virus, while those induced by the pantropic virus are absent. The evidence therefore shows that the neurotropic virus protects against the pantropic yellow fever virus, but the pantropic virus does not protect against the neurotropic virus. The subcutaneous or intraperitoneal inoculation of mixtures of pantropic yellow fever virus and pantropic Rift Valley fever virus in rhesus monkeys resulted in the protection of seven out of eleven animals. The intraperitoneal inoculation of mice with mixtures of neurotropic yellow fever virus and pantropic Rift Valley fever virus caused a delay in the death of the mice and in a small proportion of cases protected them completely. This protective action was not seen if Rift Valley fever virus was given twenty-four hours before the inoculation of the yellow fever virus. A possible explanation of the interference shown by the neurotropic strain of yellow fever virus with the pathogenic action of the pantropic strains of yellow fever and Rift Valley fever is that, when certain cells are already occupied by actively multiplying virus particles, they cannot be invaded by certain other virus particles.

Journal of State Medicine, London

45: 125-186 (March) 1937

- Iron-Deficiency Anemia Among Poor Classes in Aberdeen. H. W. Fullerton.—p. 125.
The Problem of the Rheumatic Child. H. L. Wallace.—p. 138.
Some Health Problems of London. G. E. Oates.—p. 161.
The Health of the City of New York in 1936. J. L. Rice.—p. 171.

Journal of Tropical Medicine and Hygiene, London

40: 65-76 (March 15) 1937

- Investigation of Poisonous Constituents of Sweet Cassava (*Manihot Utilissima*) and Occurrence of Hydrocyanic Acid in Foods Prepared from Cassava. B. J. W. Turnock.—p. 65.
Contribution to Study of Etiology of Acute Rheumatism: *Pneumococcus* as Causal Agent. Najib-Farah.—p. 66.

Lancet, London

1: 677-734 (March 20) 1937

- *Heart Disease with Normal Rhythm Complicating Pregnancy: Series of 100 Cases. K. Harris.—p. 677.
Chemotherapy of Typhoid and Some Other Nonstreptococcal Infections in Mice. G. A. H. Buttle, H. J. Parish, M. McLeod and Dora Stephenson.—p. 681.
Effect of Compressed Air Baths on Vital Capacity in Emphysema. G. E. Beaumont and J. F. Dow.—p. 685.
Phonostethograph: New Method of Recording and Reproducing Sounds Heard on Auscultation. C. V. Henriques.—p. 686.
Encephalitis in Measles: Report of Five Cases with One Death and One Recovery After Convalescent Measles Encephalitis Serum. G. A. E. Barnes, J. C. Blake, J. C. Hogarth and M. Mitman.—p. 687.
Tumor Growth in Hypophyseal Dwarfism. B. Zondek.—p. 689.
*Solitary Metastasis in Spleen in Carcinoma Simplex of Right Breast with Extensive Local Spread. W. H. McMenemey.—p. 691.

Heart Disease with Normal Rhythm Complicating Pregnancy.—Harris has observed 100 pregnant women suffering from valvular disease of the heart with normal rhythm during pregnancy. Only three patients have been subsequently lost sight of; the remainder have been kept under observation for at least two years after delivery, and twenty of these have been followed up for four years or more. No patient died during the course of pregnancy or labor. In the management of such a case a careful investigation of the history of the patient's exercise tolerance before and during the early months of the pregnancy is of great importance. Early breakdown of exercise tolerance in a primipara is a grave sign, since death may occur soon after labor or congestive heart failure is likely to supervene with its attendant grave risks. In multiparous women the experience derived from the previous pregnancies is of great value, since the breakdown of exercise tolerance earlier and earlier in each successive pregnancy is a serious feature for the same reason. The subsequent mortality was greater in those patients in whom congestive heart failure occurred than in those in whom it did not, and particularly in the primiparas. When congestive failure developed early in the pregnancy the patients did well, possibly as a result of obstetric treatment; those in whom the failure developed late did badly, particularly if the failure had not cleared up at the time of delivery. A short interval between pregnancies increases the risk of congestive failure in a cardiac case. The incidence of premature delivery was increased in cases in which congestive failure developed during pregnancy, whereas it was not increased in the other cardiac cases. Patients with slight or no enlargement of the heart did better than those with moderate or considerable enlargement. There appeared to be no difference in the prognosis between cases of mitral stenosis, those of aortic regurgitation and those in which both these lesions were present. Pregnancy is contraindicated in those patients with heart disease with normal rhythm, who have ever had congestive failure, in whom the exercise tolerance broke down early in a previous pregnancy or in whom the heart is considerably enlarged. Termination by emptying the uterus should be undertaken as soon as the failure has been relieved by rest and other medical measures. During the pregnancy careful supervision and increased rest with admission to the hospital for at least two weeks before the onset of labor is advisable for the successful management of a case of heart disease complicating pregnancy.

Solitary Metastasis in Spleen in Carcinoma of Breast.—McMenemey cites a case of carcinoma of the breast with solitary metastasis in the spleen. The splenic tumor is the only abdominal metastasis and the only one which cannot be readily

explained on the basis of a lymphatic spread. The presence of this large growth in the spleen is further evidence against the view now partly discredited, but still upheld in part by Krumpholtz in 1927, that the spleen exerts a "specific antagonistic action" against carcinoma cells, a view in favor of which there has been some experimental work.

Medical Journal of Australia, Sydney

1: 387-418 (March 13) 1937

Prevention of Nervous and Mental Disorders: Some Possibilities and Limitations. J. F. Williams.—p. 387.

*Metropolitan and Rural Incidence and Distribution of Acute Rheumatism and Rheumatic Heart Disease in New South Wales: Part I. K. Maddox.—p. 394.

Epithelioma of the Lip: Glandular Involvement and the "Wait and See" Method. E. S. Meyers.—p. 399.

Establishment of Central Health Authority in New South Wales. W. G. Armstrong.—p. 400.

Acute Rheumatism and Rheumatic Heart Disease in New South Wales.—Maddox divides his article into three parts: the general incidence of cardiac rheumatism in South Wales, the distribution of rheumatic heart disease in rural South Wales and the distribution of rheumatic fever in the metropolis of Sydney. He determined the admission rate for rheumatic valvular disease to seven hospitals for ten years and compared this with similar public hospitals from other countries. The percentage of total hospital admissions appeared to vary between 0.27 and 0.39 for adult hospitals to 0.7 for a large children's hospital. Rheumatic valvular lesions formed 0.47 per cent of the total admissions. Postmortem evidence of rheumatic valve injury, observed at the Royal Prince Albert Hospital for a similar period, was found in 1.5 per cent of the total necropsies. In Adelaide a rate of 3.8 per cent has been recorded. The survey results in the general conclusion that New South Wales is fortunate in occupying an intermediate position with regard to the incidence of cardiac rheumatism, since the general figure for the whole population of New South Wales, from 0.3 to 0.6 per cent, falls far short of the prevalence in the Old World or northern United States but is considerably more than is found in the tropics. The general incidence of rheumatism for all rural areas examined was 2.7 per cent; of organic heart disease of rheumatic character, 0.6 per cent. Rheumatism is distributed fairly evenly over New South Wales, while rheumatic heart disease is found more on the tablelands and slopes than in the coastal regions. In the coastal mountain range (Blue Mountains) and the areas close to its inland slopes there is a higher incidence of organic cardiac rheumatism. Certain coastal areas characterized by salt water lagoons are severely affected. In dusty areas with low annual rainfall of high seasonal concentration, and with high summer temperatures the incidence is low. Urbanization in New South Wales, at least with one possible exception (Lithgow), does not appear to raise the incidence of cardiac rheumatism. No increase is found in areas under close artificial irrigation and of high damp ground. Similarly, flat coastal areas abundantly intersected by rivers and with a high rainfall are usually free of cardiac rheumatism. As rheumatic fever is not a notifiable disease, it is impossible to make an exact estimate of its distribution within the city of Sydney. The common experience of all observers has been that it is almost entirely a disease of the public hospital class of citizen from the poorer industrial quarters. The records of the larger general hospitals of Sydney show that the slum areas and others most heavily populated by members of the public hospital community provide most of the cases. The slums, however, in no sense approach the character of those in the poorest parts of the larger European cities. The total number of patients plotted in this way amounted to 800. No definite relationship to known damp areas, either damp ground or poorly drained areas, could be established.

Japanese Journal of Obstetrics & Gynecology, Kyoto

20: 1-98 (Jan.) 1937

Study on Hemostatic Mechanism of Irradiation of Spleen with Hard X-Ray for Hemorrhagia Uteri. M. Ikegami.—p. 2.

Roentgenpelvimetry and Its Application in Obstetrics. A. Yamabe.—p. 52.

Biologic Action of Metal Surfaces: I. Influence of Surface of Lead on Emigration Power of Wandering Cells from Spleen of Chicken Embryo. K. Tsukimoto.—p. 91.

Bulletin Médical, Paris

51: 201-220 (March 27) 1937

Therapeutic Classification and Orientation of Dyspepsias. G. Lyon.—p. 203.

Diagnosis of Chronic Cholecystitis Without Lithiasis. A. Cain.—p. 207.

*Submucous Lipomas of the Stomach. M. Bariety and G. Brouet.—p. 209.

Submucous Lipomas of the Stomach.—Bariety and Brouet draw attention to lipomatous tumors of the gastro-intestinal tract ranging from 3 or 4 mm. to 6 cm. in diameter. They sometimes occur in clusters or are dispersed. They may be oval and pedunculated, disklike or pear shaped. The authors mention a case of intestinal lipoma which was traumatized by a foreign body with resulting ulceration. It may also happen that its internal or adjacent blood supply becomes interfered with, resulting in edema, congestion, ulceration, hemorrhage, leukocytic infiltration and necrosis. Ulcerations are generally small, mostly the size of a lentil. Of all the gastric tumors lipomas are rarest, occurring more frequently in men than in women and mostly beyond the age of 40. Lipomas may remain without symptoms unless they are complicated by muscular disorders, ulcerations or pyloric obstruction. In these cases there is slight pain intensity and a feeling of emptiness in the stomach, of heaviness or of painful cramps as in ulcer; in most instances they resist all therapeutic efforts. The authors observed the absence of free hydrochloric acid after a test meal. Roentgenologically they are mostly confused with other benign tumors, perhaps because of their small size. A certain degree of pyloric stenosis and gastric residue may lead to the diagnosis, which will have to be differentiated from true pyloric stenosis, cancer, ulcer or simple dyspepsia. A serologic examination will eliminate syphilitic gumma. In the face of the difficulties of arriving at a diagnosis the treatment cannot be but symptomatic, except for stenosis and hemorrhage. In these the changes of the gastric mucosa may become pronounced and frequent hemorrhage will necessitate a surgical intervention. Technical difficulties will arise in diffuse lipomatosis and when multiple exereses must be performed.

Bull. et Mém de la Soc. Méd. des Hôpitaux de Paris

52: 355-402 (March 22) 1937. Partial Index

*Blood Density in Tuberculosis and Its Relation to Arterial Tension and Size of Heart. A. Ravinia, Domart, Orinstein and L. Brouillaud.—p. 356.

Pulmonary Paraplegic Cancer. Monier-Vinard and M. Brunel.—p. 358.

Amebic Nodular Hepatitis: Case. A. Gosset and R.-A. Gutmann.—p. 365.

*A New Spirochetosis. E. Lesné, J. Troisier and H. Bénard.—p. 368.

Pseudo-Hodgkin's Disease in Pulmonary Mediastinum and Bones: Terminal Tuberculosis. M. Loeper, A. Lemaire and A. Varay.—p. 374.

Severe Hepatonephritis in Myasthenia. N. C. Vasilescu.—p. 378.

Blood Density in Tuberculosis.—Ravinia and his associates have examined the blood of forty tuberculous and twenty persons with other disorders following a few days of rest. They mix equal parts of blood taken from a fasting patient and distilled water in a small flask and place it in an incubator for a few seconds. It is then weighed. The authors have thus determined that the blood density in tuberculous patients is decidedly lower than that of others (1.046 to 1.05). At the same time they have established the fact that the heart of patients with pulmonary tuberculosis shows smaller dimensions. This may be explained by secondary changes like adhesions which are, as the case may be, capable of increasing or diminishing the dimensions of the heart. Added to this is also a lower arterial blood pressure in tuberculous patients. As a corollary they also found that the blood density in women is slightly lower than that of men, and that hypertension goes mostly with relatively heavier blood.

A New Spirochetosis.—Lesné and his associates observe that the domain of the spirochetes is increasing every year. In a patient, aged 13, with fever oscillating between 100 and 102 F. and lasting for three weeks, the authors isolated spirochetes, from 2 to 3 microns long, presenting from 2 to 10 spirals and a thickness of from 0.25 to 0.4 micron. They have great mobility and are easily stained by methylene blue, gentian violet and fuchsin. They thrive best in 4 parts of Martin's bouillon with 1 part of blood. A monkey tested with this culture responds in about four days with a thermic reaction of 104 F., lasting for two days without visceral symptoms. The spirochete is a pathogenic saprophyte showing distinct charac-

teristics of culture and virulence similar to the spirochetes described by Pons (*Spirochaeta sinensis*) in 1923 but different only in time of recovery.

Mémoires de L'Académie de Chirurgie, Paris

63: 413-451 (April 7) 1937

- *Pure Bone in Pegging Diaphysial Fractures. F. Neuman.—p. 431.
Tomography in Diagnosis of Pulmonary Lesions: Medico-surgical Interest in This Method. E. Bernard.—p. 446.

Pure Bone in Pegging Diaphysial Fractures.—Neuman maintains that metallic osteosynthesis has still many postoperative complications in spite of all technical improvements. He gives the history of six diaphysial fractures of long bones with overriding fragments. Under general anesthesia the two fragments are freed from interposed soft tissues and a piece of beef bone, 8 cm. long and 1 cm. wide, from which all fat and albumin have been removed, is inserted in the medullary cavity of the inferior fragment. The upper fragment is then manipulated so as to slip over the protruding part of the peg. This operation can be done in a few minutes without any difficulty. The wound is closed without drainage and a cast is applied. Among the six patients was a boy, aged 5, with a fracture of the lower radius and ulna successfully treated by pegging. In all cases exact coaptation and quick callus formation was achieved. The peg is gradually absorbed.

Paris Médical

1: 241-268 (March 20) 1937

- Epitheliomas Developed on Naevi Pigmentosi and Pigmented Epitheliomas. H. Halkin.—p. 241.
Endometriosis: Clinical Signs and Pathogenic Theory. G. Gricourff.—p. 249.
*Teleröntgen Therapy of Cancer. P. Cottenot and E. Chérigé.—p. 262.

Teleröntgen Therapy of Cancer.—In the treatment of deep-seated cancers with possible metastases, Cottenot and Chérigé utilized a greater focus-skin distance, higher voltage and more filtration, realizing a more equal distribution of rays over the surface of the fields. By increasing the kilovoltage to 200 they reached a greater depth, but the gain became negligible beyond 200 kilovolts. One mm. of copper improves the ratio of penetration about 13 per cent as compared with corresponding thicknesses of aluminum. The increase from 1 mm. of copper to 2 mm. is much less practical. Increasing the focus-skin distance from 1 meter to 2 meters affords about 6 per cent increase in the ratio of depth penetration given the same filtration. With increased distances, the intensity of the rays is the same in the middle as at the periphery of the field. It is thus possible to administer from 2,000 to 3,000 roentgens per field, utilizing from four to six fields and giving from 250 to 450 roentgens weekly. For fields 35 cm. in diameter a focus-skin distance of 70 cm. (semiteleröntgen therapy) is enough to destroy the cancer cells, while the defense elements of the body are imposed on as little as possible. Much different is the teleröntgen therapy applied by Mallet. His fields are from 40 to 50 cm. in diameter, so that two of them suffice to irradiate the body. His tension is from 180 to 300 kilovolts and filtration from 0.5 to 1 mm. of copper, giving not more than from 1,000 to 1,200 roentgens per field and necessitating about sixty or eighty treatments. But this method, although it gives a more homogeneous irradiation, has an injurious influence on the hematopoietic organs, because of its extended action. While it sterilizes the young cancer cells, it leaves the older cells almost intact. The semiteleröntgen therapy, as practiced by the authors, has given good results in bony metastases and cancers of the breast and uterus, but the results on the esophagus were less favorable.

Presse Médicale, Paris

45: 465-488 (March 27) 1937

- Constitution and Function of Surgical Departments. A. Gosset, P. Hauduroy and J. Gosset.—p. 465.
*Action of Carbonic Acid and of Tapwater Baths of 91.5 F. on Gas Metabolism and Peripheral Circulation. M. André.—p. 469.
Combined Action of Carbonic Acid Baths and Oxygen Inhalation During Voluntary Apnea. R. Marchal.—p. 471.
Allogenic Vasculotissular Reactions. L. Alquier.—p. 473.

Action of Carbonic Acid Baths.—A carbonic acid bath when taken at a temperature of 91.5 F. lowers the systolic and diastolic blood pressure during the first few minutes and later

raises it. It brings about a dilatation of skin capillaries, retards the pulse and increases the diuresis. André investigated its action on general metabolism and peripheral circulation. He had seven subjects between the ages of 24 and 47 years on whom he conducted his experiments, choosing about four hours after the last meal as the suitable time. He observed that the volume of expired air was increased 23 per cent. If the respiratory quotient was 0.88 before the bath, it rose to 1.16 during the bath. The average metabolic rate was increased 9.5 per cent during the bath. Briefly, a carbonic acid bath at 91.5 F. accelerates the peripheral circulation through absorption of carbon dioxide through the skin and its elimination by expiration. A bath of tap water of the same temperature tends mostly to slow down circulation. The p_{50} drops from an average of 7.41 to an average of 7.38 and this is usually accompanied by a surplus of carbon dioxide in the blood (from 50.89 to 53.36 per cent). In spite of this drop of p_{50} the average rate of oxyhemoglobin is raised from 82.5 to 86 per cent. The main argument against these figures would be the possible inhalation of carbon dioxide given off by the bath. But the author provided his subjects with pure air from without by hyperventilation and the figures obtained were the same. It is essentially the anhydride of the carbonified water, which, penetrating the immersed skin, increases the carbon dioxide contents of the venous blood.

45: 489-504 (March 31) 1937

- Congestive Tuberculous Focus Rapidly Curable. J. Minet, H. Warembourg and Delannoy.—p. 489.
Skeletal Anomaly of Elbow Joint: Sesamoid of Ulna. Kienböck and Desenfans.—p. 491.
*Clinical Value of Symptom of Sympathetic Origin in Tumors and Inflammatory Processes of Retroperitoneal Space. E. Hesse.—p. 492.
Spontaneous and Induced Pleurisy with Eosinophilia. P. Pavie, P. Lefèvre and G. Rossignol.—p. 494.

Tumors of Retroperitoneal Space.—In 1929 Hesse described a triad of symptoms of retroperitoneal tumors and their influence on the sympathetic nerves of the corresponding lower limb. These symptoms are lowering of the temperature, excessive sweating and, during the period of nervous excitation, exaggerated pilomotor reflex in the lower limb which corresponds to the side of the tumor. During the period of advanced destruction, when the sympathetic nerve is either inhibited or paralyzed, the temperature of the limb is again increased, the sweating stops and the pilomotor reflexes are arrested. These symptoms are important when the tumor is in its early stage during which the diagnosis and the localization of the growth can be made with no other methods. The difference in temperature is best measured at the toes or at the back of the foot. By merely laying the hand on both feet, the difference in temperature can often easily be made out. For more minute comparisons, comparative thermometry will have to be applied. By means of this method it is possible to tell whether the process is in its initial or its advanced stage. The temperatures of both limbs are traced daily and the day on which the two temperatures are the same indicates the passage from the state of nervous excitation to that of inhibition or paralysis. The author named this crossing "calorimetric scissors." These symptoms are verified on eight patients, in some of whom the difference of temperature was often more than 5 degrees and well noticeable to themselves.

Schweizerische medizinische Wochenschrift, Basel

67: 349-376 (April 24) 1937

- Diseases of Nervous System Caused by Deficient Nutrition. E. Mellanby.—p. 349.
*Etiologic Significance of Influenza Bacilli in Bronchiectasis. G. Elkeles.—p. 356.
Pregnancy Ileus: Case. S. Bass.—p. 359.
Digestive Disturbances Supervening After Artificial Pneumothorax. G. Zenguloff.—p. 362.
Rapid Success with Ramel's Sheep's Blood Method in Special Case of Lupus Vulgaris. M. A. Schoch.—p. 362.
Peculiar Cutaneous Disorders After Treatment with Vitamin B. F. Stocker.—p. 363.

Significance of Influenza Bacilli in Bronchiectasis.—Elkeles has made bacteriologic tests on cases of bronchiectasis with and without abscess formation which, although greatly resembling tuberculosis, could not be verified as such. They were refractory to internal therapeutic measures. In such cases

the influenza bacillus was the predominant bacillus so often that the author ascribes to it an etiologic rôle in nontuberculous bronchiectases.

Clinica Ostetrica, Rome

39: 129-192 (March) 1937

- *Congo Red Test in Differential Diagnosis of Adnexitis and Tubal Abortion. M. Geyer.—p. 129.
- Grave Vomiting, Chloropenia and Hyperazotemia in Pathogenic Vicious Circle in Pregnancy. E. Fronticelli.—p. 134.
- Rupture of Malformed Uterus in Labor: Case. A. Fortunato.—p. 138.

Differential Diagnosis of Adnexitis and Tubal Abortion.—Geyer advises the use of the hemostatic test of congo red for the differential diagnosis of adnexitis and tubal abortion causing metrorrhagia. The test consists in the administration of an intravenous injection of 10 cc. of a 1 per cent congo red solution each day for three consecutive days. If metrorrhagia is caused by adnexitis, it stops immediately after administration of the congo red injections. If it is caused by tubal abortion, the treatment fails. The treatment is harmless and can be given to ambulant patients. Four cases are reported.

Lattante, Parma

8: 145-216 (March) 1937

- *Natural Antistaphylococcic Immunity in New-Born Infants and in Children. G. C. Bentivoglio and S. Moschini.—p. 153.
- Infectious Adenopathic Monolymphocytosis: Cases. F. Cantarutti.—p. 184.
- Hemiplegia in Heart Disease: Case. Leonida Zilotti.—p. 190.

Natural Antistaphylococcic Immunity.—Bentivoglio and Moschini state that a degree of natural antistaphylococcic immunity may exist in infants and in children of different ages. Immunity in these cases is proved by the presence in the blood serum of staphylococcic antitoxin, which can be determined by the hemolytic method. The amount of staphylococcic antitoxin in the blood serum of new-born infants is the same as that in the blood serum of their mothers. Passive immunity of maternal origin diminishes rapidly after birth and in two or three months the staphylococcic antitoxin almost disappears from the blood. It again increases, however, after this time up to the age of 7. The amount of staphylococcic antitoxin in the blood serum of children from 7 years of age on is the same as that in the blood serum of adults; that is, about 1 unit of antitoxin for each cubic centimeter of blood serum. The amount of staphylococcic antitoxins in the blood serum of children is greater in the course of staphylococcic diseases, or shortly after their occurrence, than during the course or after the occurrence of diseases other than staphylococcic. Natural antistaphylococcic immunity is due to previous contagions or infections, which evolved according to several individual and other factors that were prevailing at the time the infection took place, so that a diagnosis as to the origin of the infection is not made at that time. The quantitative behavior of staphylococcic antitoxin in the blood serum shows an important phase of the clinical problem of natural antistaphylococcic immunity.

Pathologica, Genoa

29: 135-179 (April 15) 1937

- *Total Creatinemia Following Ligation of Splenic Artery: Experiments. F. de Vitoris-Medori.—p. 135.
- *Is There a Plurality of Donovan's Virus? G. Sangiorgi.—p. 140.
- Malignant Granuloma of Hypophyseal Location: Case. A. Cacciamaì.—p. 142.
- Behavior of Brain in Experimental Catatonia in Dogs. E. Mondio and F. Pino.—p. 148.
- Amyloid Degeneration and Splenectomy: Experiments. G. S. Niosi.—p. 155.

Creatinemia Following Ligation of Splenic Artery.—De Vitoris-Medori made determinations of the creatine bodies in the blood of rabbits following ligation of the splenic artery. He found a temporary lowering of the total creatinemia, which returns to normal figures in about thirty days after the operation. According to the author the hypocreatinemia is relative. It is due to diminished concentration of creatine bodies in the blood subsequent to the production of hydremia, which follows ligation of the artery, with consequent rupture of the ratio between the liquid and solid parts of the blood. The statement is proved by the fact that ligation of the splenic artery is followed by a temporary diminution of the index of refraction

of the blood which parallels that of the creatine bodies. A direct influence of the spleen on the creatine bodies does not seem to exist, according to the results of the author's experiments.

Plurality of Leishmania Donovan.—Sangiorgi found a great variety in the morphology of *Leishmania donovani* during bacteriologic studies of splenic material in a case of kala-azar in an adult. He wonders whether there are several strains of *Leishmania donovani* and, in this case, whether the different morphology of several strains is related to the virulence of the strain and to its selectivity for adults or children. In this connection, he advises the cultural and biologic studies of *Leishmania donovani*. The author's study does not include *Leishmania infantum*, which etiologically is not identical with *Leishmania donovani*.

Bol. de la Soc. Cubana de Pediatría, Havana

9: 87-118 (March) 1937

- *Determinations of Chlorides in Blood Plasma and Globules in Prognosis and Treatment of Acute Intestinal Toxi-Infectious Syndrome in Infants. F. Hurtado Galtés.—p. 92.
- Parrot Disease in Infant: Case. J. Pedrera.—p. 104.

Chlorides in Blood in Acute Intestinal Toxicosis.—Hurtado Galtés advises repeated determinations of the chlorides in the blood plasma and globules and of the alkali reserve, early in the course of acute intestinal toxicosis in infants. The normal chloride globuloplasmatic coefficient is 0.5 and corresponds to 0.5 volume in the Van Slyke scale for the alkali reserve. Higher and lower figures than that of 0.47 for the globuloplasmatic coefficient show, respectively, hyperchloremia (acidosis) or hypochloremia (alkalosis). Early treatment is of importance. Infants suffering from hyperchloremia are given intramuscular injections of a 2 per cent sodium bicarbonate solution, or intravenous injections of a 4 per cent solution of the same substance. The treatment is associated with the administration of an isotonic solution of dextrose if the increase of the coefficient is due to increase of the chlorides in the globules over those in the plasma. It is associated with the administration of Ringer's solution if the chlorides in the plasma are greatly diminished. When the increase of chlorides in the globules and the plasma is parallel, salt solutions are not resorted to. The patient is given liberal amounts of dextrose solution for rehydration and insulin (no more than 2 units of insulin for each 4 Gm. of dextrose). Infants suffering from hypochloremia are given liberal amounts of Ringer's solution and hypertonic solution of sodium chloride. By administering the treatment according to proper indications, the development of the almost fatal syndrome that complicates alkalosis erroneously treated by alkali is prevented. A drop by drop intravenous instillation is the best method for administering solutions of dextrose or sodium chloride. Direct transfusion is also of value.

Chirurg, Berlin

9: 241-288 (April 1) 1937

- Cancer and Lay Instruction. F. König.—p. 241.
- Benign Giant-Cell Tumors of Bones. G. E. Konjetzny.—p. 245.
- Genesis of Gastric Ulcer and Its Therapeutic Indications. K. H. Bauer.—p. 250.
- *Value of Roentgen Demonstration of Free Gas in Peritoneal Cavity in Perforation of Ulcer. G. Petrén.—p. 259.
- Scalenus Anticus Syndrome and Its Treatment by Scalotomy. C. Henschen and H. Heusser.—p. 266.
- New Advances in Control of Postoperative Thrombo-Embolism. R. T. von Jaschke.—p. 274.
- Medical Procedures Against Will of Patient. Warneier.—p. 279.

Free Gas in Peritoneal Cavity.—According to Petrén, roentgenologic examinations for the last five years at the Surgical Clinic of Lund of patients presenting symptoms of acute abdominal disease demonstrated the presence of free air in the peritoneal cavity in about two thirds of the cases of perforation of gastric or duodenal ulcer. Free gas can be demonstrated as early as five hours after the perforation. This roentgenologic sign was also present in a number of cases of perforation of gastric and colonic cancer and of perforations of the small intestine. The failure to obtain the sign does not rule out the existence of the perforated ulcer, since in one third of the cases the sign was absent. The diagnosis of the perforated ulcer in the cases in which the roentgenologic sign was positive presented no diagnostic difficulty and could have been arrived at

without resorting to roentgenologic examination. The author does not recommend routine employment of the method in cases of acute abdominal disturbance in which perforation is not suspected. The roentgenologic examination for free gas in the peritoneal cavity can be made with the patient lying down in the left lateral position. Of forty cases of perforation of ulcer examined roentgenologically for the presence of free air, twenty-seven were positive and thirteen were negative. The roentgenologic examination was of determining diagnostic value in only six. In a group of forty-two cases of perforation of ulcer in which no roentgenologic examination was made, the diagnosis presented no difficulty. The demonstration of free gas in the peritoneal cavity was thus of diagnostic value in six out of eighty-two cases. The author feels that the practical value of the method should not be overestimated. In about 10 per cent of the cases of perforation of ulcer the diagnosis may present difficulties, and it is in these that the roentgenologic demonstration of free gas in the peritoneal cavity is of determining value.

Deutsche medizinische Wochenschrift, Leipzig

63: 617-660 (April 16) 1937. Partial Index

- *Influence of Change of Weather on Normal Human Organism. J. Kühnau.—p. 617.
What Type of Nervous Patients Are Suitable for Treatment in Sea-side Resorts? H. Curschmann.—p. 620.
Indications and Contraindications in Prescription of Natural Carbon Dioxide Baths. R. Wachter.—p. 622.
Treatment of "Status Asthmaticus." J. Diener.—p. 624.
Does Radioactivity of Ground and Air Have Climatotherapeutic Significance? H. Israel-Köhler.—p. 632.

Effects of Change of Weather on the Human Organism.—Everyday experiences show that noticeable reactions of the human organism take place only in case of weather changes. Kühnau says that the manner in which weather changes influence the organism is extremely complicated. A part of the effects of weather changes on the organism—drastic changes of the air moisture, temperature and wind velocity—can be explained by a sudden demand on the temperature regulation of the organism. In "weather sensitive" subjects, however, weather changes become noticeable also outside the temperature regulation, for instance in sudden metabolic changes. Sensitive persons may even feel changes in the weather in advance. These phenomena have not been completely explained as yet. Individual persons react to stimuli of meteorological changes in different ways and with different intensities. Some of the influences on the human organism can be explained by a modification of the sympathetic nervous system. Children and persons of the leptosome type are frequently irritable and restless during the passage of an arctic front but drowsy and somnolent during the passage of an equatorial front. The author cites Petersen's opinions about the effects on the organism of the invasion of the arctic front (anticyclone) and of the equatorial front (cyclone) and discusses the influence exerted by changes in air bodies on the blood pressure, the basal metabolism and the morphology and chemistry of the blood. The author thinks that there is a tendency to underestimate the influence exerted by the meteorological conditions on the healthy individual and that a better knowledge of the physiologic actions of the weather will aid in the understanding of its rôle in the development of diseases.

Klinische Wochenschrift, Berlin

16: 513-552 (April 10) 1937. Partial Index

- Animal Experiments on Action of Di-Iodotyrosin (3,5 Di-Iodo-4-Oxy-phenylalanine) on Lactation. P. Grumbrecht and G. von Düsterlohe.—p. 513.
Electrocardiographic Aspects of Infectious-Toxic Impairment of Myocardium. B. Weicker.—p. 516.
Clinical Experiences with Takata-Ara Reaction, Its Relation to Bilirubin Content of Serum and to Albumin-Globulin Quotient. H. Gohr and G. Niedeggen.—p. 522.
*Mites as Endoparasites in Urinary Passages. R. Pfaffenberg and J. Konischewski.—p. 527.
Clinical and Experimental Pathology of Inflammation. L. Hofbauer.—p. 529.
Evaluation of Whooping Cough Therapy. U. Grüniger and W. Kemper.—p. 531.

Mites as Endoparasites in Urinary Passages.—Pfaffenberg and Konischewski point out that the theory of true endoparasitism in the gastro-intestinal tract seems to be contradicted

by the fact that it has never been possible to demonstrate living mites in the feces. To be sure, the feces of dogs that had been experimentally infected with mites have been found to contain living mites, but even the occasional appearance of living mites in the stools would not necessarily indicate parasitic action. Whereas a mite-endoparasitism of the intestinal tract has not been definitely proved, there seems to be evidence of mite-endoparasitism in the urinary tract. After reviewing the literature on the occurrence of mites in the urinary tract, the authors report two cases of their own observation. One concerned a baker, aged 26, who complained of pains in the hypogastric region and in the kidney of the right side. The patient had a nephritis that was complicated by a paranephritic abscess. Mites of the type *Tyroglyphus* were detected in urine that had been withdrawn under sterile conditions from the bladder and the ureter. The second patient was the wife of the first patient. She too had living mites of the same type in the urine that had been withdrawn from the bladder and the ureters as well as in the urine that was voided spontaneously, but she had no symptoms of disease. In order to determine whether perhaps bakers are especially exposed to mite-endoparasitism of the urinary tract, studies were made on 119 bakers. The tests that were made under absolutely sterile conditions always were negative. From this it is concluded that the occupation of the first patient was of no significance for the infestation with mites.

Medizinische Welt, Berlin

11: 415-450 (March 27) 1937. Partial Index

- Vitamin Therapy in Surgical Disturbances. H. J. Lauber.—p. 415.
*Treatment of Pseudarthroses. B. Martin.—p. 420.
Results and Technic of Whitehead's Operation for Hemorrhoids. A. Hermannsdorfer.—p. 423.
Surgery of Gastric Ulcer. C. M. Behrend.—p. 425.
After-Treatment of Injuries of Elbow Joint. F. Reckling.—p. 427.
Orthopedic Treatment of Permanent Injuries of Upper Extremities. F. Kirschner.—p. 430.

Treatment of Pseudarthroses.—Martin tried to differentiate between retarded healing of a fracture and pseudarthrosis, for he considered this differentiation important for the treatment. He thinks that, if the callus at the end of the fracture is still cloudy, without sharp outlines and without structure, the callus formation is still in progress and that cloudy, more or less connected shadows indicate the same, provided continuous roentgenologic control examinations have not already revealed retrogressive processes. He emphasizes that the healing of fractures differs greatly as regards duration as well as manner and extension of callus formation. This is proved by continuous roentgen controls. Considerably retarded callus formation justifies Beck's drilling of the bone. This method is simple and highly effective. He admits that in the healing of a fracture all parts of the bone play a part: the marrow, the corticalis and the periosteum, but he regards the marrow as of primary importance and shows that the great value of Beck's drilling lies in the fact that it establishes a connection between both marrow cavities. He emphasizes the value of continuous observation of a healing bone fracture. He tells of a patient with pseudoarthrosis who has been under his observation for twenty years. In numerous roentgenograms he was able to observe the development and cure of the first pseudoarthrosis, a relapse and its cure, and finally the regeneration of the bone defect at the site from which the transplantation had been taken.

11: 451-486 (April 3) 1937. Partial Index

- Rhythms in Life of Woman. H. Guthmann.—p. 451.
Diameter of Erythrocytes in Nervous Disorders, Particularly in Multiple Sclerosis. H. Maier and Irmgard Schuh.—p. 456.
New Methods of Roentgenotherapy in Inflammatory, Endocrine and Nervous Disturbances. A. Püschel.—p. 459.
Lymphogranuloma: Internal Treatment. V. Schilling.—p. 463.
*Irradiation in Lymphogranuloma. W. Baensch.—p. 464.
Orthopedic Treatment of Permanent Impairments of Upper Extremities. F. Kirschner.—p. 466.

Irradiation in Lymphogranuloma.—Baensch, in discussing the ray treatment of lymphogranuloma, admits that this method is not a causal one and can influence only the secondary manifestations. His experiences with ray treatment are based on seventy-eight cases in which the treatment has been completed and on ten in which treatments are still being given.

Roentgen or radium treatment is resorted to again and again, because the medicinal treatment fails to produce satisfactory results. Some authors recommend small and others massive doses. On the basis of his own observations, he advises small doses to begin with, for the smaller the initial doses, the longer will the irradiation remain effective. Moreover, it is characteristic for lymphogranuloma that it reacts promptly to small doses. After giving the first focal dose of 150 roentgens, the author tries to secure for the patient climatic or heliotherapy, as he saw favorable effects from heliotherapy, particularly during the first and second stages of lymphogranuloma. To be sure, if lymphogranuloma takes a fulminant course, heliotherapy is ineffective, for these cases usually terminate fatally within a few months. Frequently, however, heliotherapy is followed by a latent stage, which may last from several months to three years. After that the glandular swellings recur either in the same regions or in adjoining ones. During the second stage it is generally advisable to administer about 300 roentgens to each field. The author observed in many cases that the glandular swellings as well as the fever subsided between the fourth and sixth days after the irradiation. For this reason he did not irradiate the same region after shorter intervals but waited at least six or eight days. Occasionally considerable improvement is still obtained during the second stage, but the glandular swellings are usually refractory to the influence of rays during the third stage. In case of superficial glandular swellings, radium treatment accomplishes about the same as does roentgenotherapy, but if deeper lying lymph nodes are involved, particularly the mediastinal and bronchial ones, roentgen irradiation is usually preferable.

Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

104: 257-380 (Feb.) 1937. Partial Index

- *Percutaneous Puncture of Hydramnion During Pregnancy. A. Mayer.—p. 259.
- *Simultaneous Intra-Uterine and Extra-Uterine Pregnancy. H. O. Neumann.—p. 265.
- Further Experiences with Ray Therapy of Carcinoma of Uterine Cervix. O. Nebesky.—p. 275.
- Chronic Inflammation of Pelvic Connective Tissue. E.-A. Müller.—p. 311.
- Symphysiotomy. H. Heuck.—p. 316.
- Course of Delivery in Old Primiparas. H. Döring.—p. 322.

Percutaneous Puncture of Hydramnion During Pregnancy.—Mayer directs attention to the fact that a severe hydramnion may cause considerable difficulties, such as severe dyspnea. If the signs of congestion become too severe, evacuation of the over large uterus by artificial termination of the pregnancy may become necessary, but the author suggests puncture of the hydramnion through the abdominal walls as another possibility. He thinks that the measure is indicated in serious signs of congestion with dyspnea. The technic is comparatively simple. The skin is disinfected and the puncture is made with a sterile trocar. The author usually makes the puncture about midway between the symphysis and the umbilicus, in the midline, because here are the fewest vessels and normally there are no intestinal loops in this region, so that the danger of damaging the intestine is excluded. In order to avoid injuries of the urinary bladder the puncture is preceded by catheterization. Local anesthesia is used. The amount of amniotic fluid withdrawn varies between 850 and 3,750 cc. The immediate result of the puncture was always good. The further course of the pregnancy varied. In order to avoid labor pains, morphine or some other opium preparation was administered. Mild labor pain appeared in two cases but subsided again. In five cases delivery took place after one, three, six, eight and ten days, respectively, but in the other cases up to ten weeks elapsed before the termination of the pregnancy. The author never observed damage to the child.

Simultaneous Intra-Uterine and Extra-Uterine Pregnancy.—Neumann reports the clinical histories of three cases of simultaneous intra-uterine and extra-uterine pregnancy. In the first woman intra-uterine pregnancy concurred with a tubal pregnancy. The second patient had an intra-uterine and an ovarian pregnancy. In the third woman pregnancy existed simultaneously in the main horn of a uterus unicornis and in the atretic accessory horn.

Münchener medizinische Wochenschrift, Munich

84: 561-600 (April 9) 1937. Partial Index

- Experiences with Radiotherapy of Malignant Tumors of Upper Air and Food Passages. R. Schinz and A. Zuppinger.—p. 561.
- Electrogymnastics in Treatment of Myoparalyses and Myasthenias. J. Kowarschik.—p. 564.
- *Borderline Rays in Treatment of Lupus. H. L. Bamberg and P. Kröker.—p. 569.
- Apparatus for Compression Massage. Schede.—p. 574.
- Epidemiology of E-Dysentery. F. Hoder.—p. 575.
- Dangers of Wilde's Incision in Orogenic Abscesses of Soft Parts. O. Holm.—p. 576.

Borderline Rays in Treatment of Lupus.—Bamberg and Kröker report their observations on several hundred patients with lupus. After discussing the reaction of the tissue to the borderline rays, they point out that failure of this treatment is frequently caused by a faulty technic. They work with 9 and 10 kilovolts and 10 milliamperes. The half layer value amounts to from 0.0185 to 0.02 mm. of aluminum. The focus skin distance is between 2.5 and 5 cm. In order to be able to apply the large doses of rays required for the strong skin reaction without impairing the curative action, efforts were made to combine the borderline ray therapy with other methods; namely, with a preliminary irradiation with red rays and with the application of a tuberculin ointment. The combination therapy is employed in the following manner: After the crusts and scabs have been removed from the lupus focus, a small amount of tuberculin ointment is rubbed in. Then red rays are applied for fifteen minutes and this is followed by treatment with borderline rays. Whereas formerly the initial dose of borderline rays had to be from 2,000 to 2,500 roentgens, the combination treatment makes it possible to reduce it to from 1,000 to 1,500 roentgens. This dose is also generally adhered to for the later irradiations; occasionally it is increased to 2,000 roentgens. Several weeks elapse before the first reaction subsides. After that, the second irradiation is given. A therapeutic cycle, that is, the treatment required for a temporary cure of a lupus focus, consists of from 15,000 to 20,000 roentgens. The described combination therapy of lupus prevents the application of large doses of rays and with that, ray injuries. The method is an inexpensive and ambulatory treatment.

Wiener klinische Wochenschrift, Vienna

50: 395-426 (March 26) 1937. Partial Index

- Pathology of Peripheral Vessels. H. Chiari.—p. 395.
- Antihormones. J. Bauer and E. Kunewälder.—p. 399.
- *Are Changes in Former Technic of Vaccination Justified? M. Kaiser.—p. 401.
- *Sedimentation Speed as Differential Diagnostic Aid in Cerebral Disorders. Edith Singer and E. Edel.—p. 406.
- Actions of Estrogen on Skin in Cutaneous Administration. Histologic Studies on Infantile and Senile Rats. H. Kun.—p. 408.
- Clinical Aspects and Therapy of Early Tuberculous Infiltrate. W. Neumann.—p. 411.

Technic of Vaccination.—Kaiser points out that, although vaccination has been practiced for more than a century, it still involves dangers. A review of the cases in which complications developed showed that the largest number were the result of the epidermal growth of the pustule. The superficial position of the infectious pus under the thin cover of epidermis is dangerous. Thus it is that efforts have been made to effect an immunization against smallpox without epidermal efflorescence. Studies have been made to determine whether immunity can be produced by other than the cutaneous method. The author reviews experiments with the intracutaneous administration of the vaccine that were conducted by other investigators and then describes his own observations with subcutaneous vaccinations. The mothers of the children prefer this method. In a few cases complications have developed in the form of polymorph exanthem and of vaccinia generalisata. The immunity is still good after a year but cannot yet be estimated for a longer period. Moreover, the favorable effects that have been accomplished in the past with the customary cutaneous method should not be overlooked.

Sedimentation Speed in Cerebral Disorders.—Singer and Edel studied the blood sedimentation speed of 115 patients with cerebral disorders. Their conclusions are based only on cases that were verified by operation or definite clinical manifesta-

tions. They found that the determination of the sedimentation speed of the erythrocytes is valuable, especially from the neuro-surgical point of view. The sedimentation reaction permits a differentiation (1) between hydrocephalus with a normal sedimentation speed and cerebral tumor with slightly accelerated sedimentation speed, (2) between serous meningitis (with normal sedimentation speed) and cerebral tumor, (3) between acute encephalitis, in which the sedimentation speed is greatly increased, and cerebral tumor, and (4) between hemorrhagic pachymeningitis (with moderately increased sedimentation speed) and cerebral tumor. The sedimentation speed is helpful also in determining the benign or malignant character of a cerebral tumor. Meningioma and glioma are characterized by a moderately accelerated sedimentation speed and can thereby be differentiated from carcinomatous metastasis, in which the sedimentation speed is greatly accelerated. If the problem is to distinguish between cerebral arteriosclerosis and cerebral tumor, a greatly accelerated sedimentation speed is indicative of cerebral arteriosclerosis, whereas a normal or slightly accelerated sedimentation permits no differentiation in such cases. The authors do not consider these studies completed but are continuing their investigations.

Wiener medizinische Wochenschrift, Vienna

87: 369-400 (April 3) 1937. Partial Index

- Development of Birth Injuries of Central Nervous System. A. Eckstein.—p. 370.
Fresh Air for Nurslings in Especially Constructed Window Boxes. F. Hamburger.—p. 373.
Track Encephalitis. H. Hoff and O. Pözl.—p. 374.
Subcutaneous Cowpox Vaccination. W. Knöpfelmacher.—p. 376.
Benign Form of Epilepsy During Puberty. O. Marburg.—p. 377.
Question of So-Called Serous Meningitis. A. Reuss.—p. 381.
*Diagnostic Significance of Condition of Cerebrospinal Fluid in Encephalitis, Poliomyelitis and Infectious Serous Meningitis. K. Hassmann.—p. 384.

The Cerebrospinal Fluid in Certain Diseases.—Hassmann points out that there are three groups of disorders of the central nervous system which are of especial significance as regards the condition of the cerebrospinal fluid: infectious encephalitis, infectious poliomyelitis and infectious serous meningitis. Nearly all disorders belonging to these groups show similarities not only as regards the clinical symptoms but also as regards the reactions of the cerebrospinal fluid. The examination of the cerebrospinal fluid in a large number of cases with these disorders revealed that it is incorrect to say that the sugar content of the cerebrospinal fluid is always normal or increased in the aforementioned disorders. In all three of these groups he observed numerous cases in which the sugar content of the cerebrospinal fluid was noticeably decreased. He was unable to detect a relationship between cell number, type of cell and the sugar content. Repeated examination of the cerebrospinal fluid in the same patient seemed to indicate that, as regards the sugar content and the cells of the cerebrospinal fluid, individual factors play an important part.

Polska Gazeta Lekarska, Lwów

16: 329-348 (May 2) 1937

- Organization of Rural Medical Service. E. Piotrowski.—p. 329.
Primary Dermatomyositis with Hemorrhage. Case. F. Halpern and M. Ferber.—p. 331.
*Abscess of the Prostate. H. Drucker.—p. 333.
Therapeutic Value of Thiosulfate of Sodium Silver in Male Gonorrhea. T. Koniar.—p. 336.
Therapeutic Value of Chemical Group Containing P-Aminobenzenesulfonamide: I. (Frontosil). T. Kucharski.—p. 338.

Abscess of the Prostate.—Drucker operated early in twenty-eight cases with one death due to septicemia. Prognosis of abscess of the prostate when diagnosed correctly and operated on immediately is most always good. One patient had perinephritis but recovered after early operation. Early incision of the abscess has for its object the prevention of recurrence, of rupture into the other organs and of general infection. In hematogenous abscess the prognosis is not so good, especially in neglected cases. Abscess of gonorrheal origin must be opened early, as conservative treatment often leaves a focus of latent infection which, after years of apparent cure, may become active.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

March 30, 1937 (No. 6) Pp. 401-480. Partial Index

- *Experimental Data on Etiology of Epidemic Grip. A. A. Smorodintsev, A. I. Drobyshevskaya, S. M. Ostrovskaya and O. I. Shishkina.—p. 408.
Clinical Observations on Men Infected with Influenzal Virus. Ya. L. Gotlib, A. A. Korovin, M. L. Shcherba and N. V. Ilyina.—p. 419.
Campaign Against Grip. D. M. Rossiyskiy.—p. 431.
Epidemiologic Characteristics of the Grip Epidemic of 1936. I. A. Dobreytser.—p. 441.

Epidemic Grip.—Smorodintsev and his associates, in the course of the grip epidemic in 1936, established the fact of quantitative increase in the number of pneumococci, Pfeifer bacillus, *Micrococcus catarrhalis* and, in a number of cases, of *Streptococcus haemolyticus* in the throats of the patients. The greatest increase corresponded to the first five or six days. The authors suppose that the primary cause of epidemic grip is a filtrable virus which produces an inflammatory process in the respiratory tract and that the virus activates such microbes as the pneumococcus or the Pfeifer bacillus. Active immunity in mice was increased by subcutaneous injection of nonfatal doses of the virus. The immunity lasted seventy-five days. With the inhalation method of immunization it was extended to 150 days. The virus introduced by the inhalation method is rapidly destroyed and, two days later, the animal is capable of surviving the introduction of 1,000 fatal doses. The authors conclude that the loss of infectivity in an actively immunized animal is due to increased capacity of the tissues, and in particular of the pulmonary tissue, to destroy the virus. Eighty volunteers were infected with increasing doses of the mouse virus, utilizing the inhalation method. The maximal amount introduced was from 0.5 to 1 cc. of a 10 per cent emulsion of lung tissue of white mice, which were infected with a fatal dose of the virus and killed two days later. About one fifth of the volunteers became infected and presented a mild form of the grip, resembling in its main features the epidemic variety. The authors found that quantitative and qualitative analysis in experimental grip showed no increase in the number of pneumococci, *Streptococcus haemolyticus*, bacillus of Pfeifer or *Micrococcus catarrhalis*. There was no increase in the amount of the virus present in the respiratory passages. None was present forty-eight hours after the infection. The loss of virulence of the mouse virus introduced into man was also demonstrated by the absence of contagiousness on the part of the medical personnel treating the infected patients. The authors were able to demonstrate that the development of experimental grip depended on the content of the antiviral immune bodies in the blood. This content increased through the method of introduction by inhalation, suggesting prophylactic possibilities against epidemic grip.

Ugeskrift for Læger, Copenhagen

99: 355-382 (April 1) 1937

- Significance of Bacteriologic Diagnosis for Understanding of Epidemiology of Tuberculosis. C. A. Blume.—p. 355.
Rat-Bite Fever. Case. I. Knudsen.—p. 363.
Anemia Due to Goat's Milk. Case. H. E. Nielsen.—p. 366.
*Investigations on Relation Between Bleeding Time and Number of Blood Platelets in Essential Thrombopenia (Werlhof's Disease) After Injection of Epinephrine. A. B. Hansen.—p. 368.

Bleeding Time in Essential Thrombopenia.—Hansen found a marked rise in the thrombocyte count in two cases of essential thrombopenia after injection of epinephrine, in one case maintained during twenty-three days' observation, in the other continuing for a few days. In two splenectomized patients with essential thrombopenia, injection of epinephrine failed to increase the number of thrombocytes. The marked increase in thrombocytes in the peripheral blood after the injection of epinephrine in the first cases is believed to depend on a release of thrombocytes from the various depots in the organism, primarily the reticulo-endothelial system. The author asserts that there is no direct relation between the thrombocyte count in essential thrombopenia on the one hand and the time of bleeding according to Duke and the origin of spontaneous hemorrhages in the skin and mucous membranes on the other. The abnormal duration of bleeding in cases with normal blood platelet values may be due to an agglutination defect in the platelets, and spontaneous hemorrhages in cases with normal platelet count must be explained either by a defective production of thrombokinase or by abnormality of blood vessels.

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RHEUMATOID ARTHRITIS

A COMPARATIVE EVALUATION OF THE COMMONLY
EMPLOYED DIAGNOSTIC TESTS

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In order to follow the course and evaluate therapy in a chronic disease, the need is evident of an objective laboratory test to supplement clinical observation. Diagnostic tests, such as the Wassermann reaction and its modifications, are at hand in the case of syphilis. The basal metabolism is employed as a diagnostic test as well as a therapeutic "measuring stick" of one of the important abnormalities in thyroid disease. The lack of a diagnostic test and a therapeutic "measuring stick" in a chronic disease of unknown etiology characterized by remissions and relapses, such as rheumatoid arthritis,¹ is all too apparent to the student of this disease. Certain "measuring sticks" have been applied from time to time and correlation attempted with the course of the disease. Among the more important in use thus far are the sedimentation rate of the red blood corpuscles, the determination of the number of younger polymorphonuclear leukocytes in the peripheral blood (Arneth-Schilling count and modifications), the Vernes resorcinol test, and the power of the blood serum to agglutinate certain types of streptococci. It is our purpose in this paper to evaluate the accuracy of these four tests in a group of undoubted cases of clinically active rheumatoid arthritis, with simultaneous performance of all four tests in most instances.

In 1703, long before the advent of clinical laboratory methods, the "buffy clot," which from the work of Fahraeus² we now know represented the increased sedimentation rate of the red blood corpuscles, was observed in rheumatism by Musgrave.³ Over 200 years later, in 1924, the first extensive investigation of the sedimentation rate in acute and chronic arthritis was made, by Herrmann.⁴ His conclusions have been largely confirmed

by all subsequent workers. In brief, the rate was increased in rheumatic fever, gonorrheal arthritis, acute gouty arthritis and rheumatoid arthritis but normal or nearly so in degenerative arthritis⁵ and nonarticular rheumatism (myositis, fibrositis, sciatica, lumbago). In rheumatoid arthritis, he found that the rate roughly paralleled the grade and intensity of the disease, was low in burned out cases, was of aid in determining the proper time for joint operations, and was sometimes valuable in diagnosis when few objective signs were present. Herrmann's work was confirmed in the next few years by Kahlmeter,⁶ Race⁷ and Dittges,⁸ while the first report of Dawson, Sia and Boots,⁹ in 1930, has resulted in the acceptance of the test by many workers¹⁰ in this country as a valuable aid in the management of cases of arthritis.

The sedimentation rate of the red blood corpuscles is, of course, entirely a nonspecific reaction. It is increased in most infectious diseases, as well as in malignant growths, hepatic jaundice, pregnancy and other noninfectious conditions with tissue destruction. The exact mechanism of its action is not known as yet. Cross experiments have shown that it is a function of the plasma and not of the cells. Increased rates may be related to the changes in the plasma proteins, which have been observed in arthritis and other diseases. Interesting recent work¹¹ has shown that in rheumatoid arthritis there is a tendency toward a reversal of the normal albumin-globulin ratio, while the fibrinogen is usually increased. Further studies along these lines might aid in elucidating the pathologic physiology concerned.

While there may be a leukocytosis during the acute febrile stage, which often ushers in an atypical attack of rheumatoid arthritis, as a rule the well established case shows a normal or even low white blood count.

5. Synonyms for degenerative arthritis are hypertrophic arthritis and osteo-arthritis.

6. Kahlmeter, G.: Ueber die Bedeutung der Fährreusschen Senkungsreaktion bei akuten und chronischen Arthritiden, *Klin. Wchnschr.* 5: 889 (May 14) 1926.

7. Race, J.: The Suspension Stability Test in Rheumatoid Diseases, *Proc. Roy. Soc. Med. (Sect. Bact. and Climatol.)* 22: 15 (March) 1929.

8. Dittges, H. J.: Senkungsreaktion und weisses Blutbild bei rheumatischen Erkrankungen, *Deutsche med. Wchnschr.* 55: 1171 (July 12) 1929.

9. Dawson, M. H.; Sia, R. H. P., and Boots, R. H.: The Differential Diagnosis of Rheumatoid and Osteo-Arthritis: The Sedimentation Reaction and Its Value, *J. Lab. & Clin. Med.* 15: 1065 (Aug.) 1930.

10. Weiss, Arthur: The Prognostic Value of the Sedimentation Rate in Arthritis: A Modification of the Technic, *Am. J. M. Sc.* 181: 379 (March) 1931. Kling, D. H.: Sedimentation Rate of Blood Corpuscles in Synovial Fluid and in Plasma: Method of Estimation and Significance in Arthritis, *Arch. Int. Med.* 50: 419 (Sept.) 1932. Stainby, W. J., and Nichols, E. E.: The Clinical Significance of the Erythrocytic Sedimentation Test in Rheumatoid Arthritis, *J. Clin. Investigation* 12: 1041 (Nov.) 1933. Oppel, T. W.; Myers, W. K., and Keeler, C. S.: The Sedimentation Rate of the Red Blood Cells in Various Types of Arthritis, *ibid.* 12: 291 (March) 1933. Rawls, W. B.; Gruskin, B. J.; Ressa, A. A., and Jordan, Marie: The Sedimentation Rate and Polymorphonuclear Count in Rheumatoid and Mixed Arthritis, *J. Lab. & Clin. Med.* 19: 830 (May) 1934. Steinberg, C. L.: The Schilling Count in Fifty-Nine Cases of Chronic Arthritis with a Correlated Sedimentation Rate in Thirty Cases, *Am. J. M. Sc.* 190: 98 (July) 1935.

11. Aldred-Brown, G. R. P., and Munro, J. M. H.: The Plasma Proteins and Nonprotein Nitrogen, and the Sedimentation Rate, in Chronic Rheumatic Disorders, *Quart. J. Med.* 4: 269 (July) 1935.

Davis, J. S., Jr.: Protein Studies in Atrophic (Rheumatoid) and Hypertrophic Arthritis, *J. Lab. & Clin. Med.* 21: 478 (Feb.) 1936.

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Owing to lack of space, this article is abbreviated in *THE JOURNAL* by the omission of table 1, which gives the results of the tests in forty-nine cases. This table will appear in the authors' reprints.

1. Synonyms often employed for rheumatoid arthritis are proliferative arthritis, atrophic arthritis, and chronic infectious arthritis.

2. Fahraeus, R.: The Suspension-Stability of the Blood, Stockholm, P. A. Norstedt and Söner, 1921.

3. Musgrave: Arthritis ex Chlorosi, cited by Jones, R. L.: Arthritis Deformans, p. 140, Bristol, John Wright & Sons, Ltd., 1909.

4. Herrmann, H.: Die Blutkörperchensenkungsgeschwindigkeit bei Arthritiden und rheumatischen Affektionen der Muskulatur, München, med. Wchnschr. 71: 1714 (Dec. 5) 1924.

Similarly, a polymorphonucleosis may be present in the early stages, leading later even to a neutropenia with an increase in the number of the lymphocytes. Thus both the white blood cell count and the routine (Ehrlich) differential leukocyte counts are of little assistance in following the course of the disease. On the other hand, the presence of young polymorphonuclear leukocytes in the peripheral blood has been quite constantly observed in rheumatoid arthritis since the work of Dittes⁸ in 1929, and in consequence Schilling, or filament-nonfilament leukocyte, counts have been utilized in recent years by various British and American workers.¹²

TABLE 2.—Summary of All Tests Done on Patients with Rheumatoid Arthritis

	No. of Patients	No. of Tests	Positive	Percentage
Sedimentation rate.....	49	154	142	92.2
Vernes test.....	49	139	81	58.3
Schilling count.....	35	100	87	87.0
Agglutination*.....	47	130	69	53.1
with C17.....	47	130	45	34.6
with NY.....	47	130	32	24.6
with RB.....	44	105	31	28.6
with AB.....	45	105	21	20.0

* Meaning that any one of four streptococcus agglutination reactions was positive.

While no final conclusions can yet be drawn, this test is usually positive in cases of clinically active rheumatoid arthritis. Again, we are dealing with a nonspecific test, representing a bone marrow response, found in many infectious and noninfectious conditions.

The Vernes resorcinol test is relatively unfamiliar in this country but has been quite extensively used in France in charting the activity of various diseases. In the United States, its use in tuberculosis was suggested in 1927 by Baylis,¹³ who in the following year published the description of a simplified method.¹⁴ Briefly, this consisted in mixing 0.5 cc. of a 1.25 per cent aqueous solution of resorcinol with an equal quantity of the patient's serum and allowing the mixture to stand over night in the refrigerator. The degree of turbidity observed supposedly represents an approximation of the clinical activity of the disease. In 1931 Coste, Lacapère and Rapaport¹⁵ applied the Vernes test to the study of arthritis. Other French authors¹⁶ agree that the test is of real value, with most cases of rheumatoid arthritis showing abnormal readings. Again the test is entirely nonspecific, since it is positive in tuberculosis, syphilis and other infections as well as in malignant conditions. The mechanism of the reaction is unknown. It is probably related to the precipitability of plasma proteins by electrolytes, with fibrinogen eliminated, since serum, not plasma, is used.

12. Hill, L. C.: Observations on Polynuclear Count in Rheumatic Disease, *Acta rheumatol.* 3:6 (Sept.) 1931. Eaton, E. R.: Chronic Arthritis: Report Based on Study of Blood Cell Count in 250 Cases, *J. Am. Inst. Homeop.* 25:125 (Feb.) 1932. Steinberg, C. L.: The Schilling Differential in Infectious and in Hypertrophic (Degenerative) Arthritis, *J. Missouri M. A.* 30:485 (Dec.) 1933. Steinbrocker, Otto, and Hartung, E. F.: The Filament-Nonfilament Count in Chronic Arthritis: An Aid in Differentiation of Rheumatoid Arthritis and Osteoarthritis, *J. A. M. A.* 100:654 (March 4) 1933. Collins, D. H.: The Neutrophil Nuclear Count in Chronic Rheumatism, with Special Reference to Osteoarthritis of the Hip, *Acta rheumatol.* 8:3 (Feb.) 1936. Rawls, Gruskin, Ressa and Jordan,¹⁹ Steinberg.¹⁹

13. Baylis, A. B.: The Vernes Test for Tuberculosis, *Am. Rev. Tuberc.* 15:500 (April) 1927.

14. Baylis, A. B.: The Vernes Flocculation Test for Tuberculosis: Results of 250 Cases, *Am. Rev. Tuberc.* 18:513 (Oct.) 1928.

15. Coste, F., Lacapère, J., and Rapaport, N.: La réaction de flocculation à la résorcine (réaction de Vernes) dans le rhumatisme subaigu ou chronique, *Compt. rend. Soc. de biol.* 106:424 (Feb. 20) 1931.

16. Lacapère, J., and Fénal, B.: Comparaison de la réaction de Vernes à la résorcine et de la vitesse de sédimentation des hématies dans 93 cas de "rhumatisme," *Arch. Inst. prophylac.* 6:38, 1934.

In 1930 Cecil, Nicholls and Stainsby¹⁷ reported that hemolytic streptococci recovered from the blood and synovial fluid of patients with rheumatoid arthritis were uniformly agglutinated to a high titer in the serums obtained from patients with rheumatoid arthritis. Further work disclosed that hemolytic streptococci obtained from patients with other infectious diseases would give similar reactions. Nearly all normal and pathologic control serums were negative and other organisms failed to be agglutinated in arthritic serums. Dawson, Olmstead and Boots¹⁸ (along with other American workers¹⁹) have confirmed these observations and have disclosed in addition that the R pneumococcus will give similar positive results. The agglutination reaction is usually negative in children or in the first six months of the disease in adults, increases in intensity as the disease develops, and may disappear with recovery. In Cecil's original paper, the test was compared to the Widal reaction in typhoid, as specific and reliable in the diagnosis of rheumatoid arthritis. Later studies have disclosed less uniform results, although Dawson, Olmstead and Jost's²⁰ finding of precipitins to carbohydrate and protein fractions of the streptococcus in the serums of patients with rheumatoid arthritis may be considered as evidence favoring the claim of specificity. In contrast, then, to the three measuring sticks previously described, which are admittedly nonspecific, in this case we may be dealing either with a specific diagnostic test without etiologic significance (like the Weil-Felix and Wassermann reactions) or even one concerned with the causative organism.

METHODS

The group of patients studied numbered forty-nine. They all fulfilled the diagnostic criteria of rheumatoid arthritis in an active stage, patients with hypertrophic arthritis alone, gonorrheal arthritis and gout being carefully excluded. The majority of these patients have been followed since the initial period of observation, some for as long as four years. This enabled us to be

TABLE 3.—Relationship to Duration of Disease

	Less Than One Year		One Year or More	
	No. of Tests	Percentage Positive	No. of Tests	Percentage Positive
Sedimentation rate.....	39	79	115	96
Vernes test.....	39	54	100	59
Schilling count.....	26	65	74	93
Agglutination*.....	32	47	68	55
with C17.....	32	16	68	41
with NY.....	32	9	68	29
with RB.....	28	32	77	27
with AB.....	27	11	78	22

* One of four strains positive.

absolutely certain of the initial diagnosis, as well as to exclude a few patients who were believed perhaps to be in the prodromal stage of rheumatoid arthritis but

17. Cecil, R. L.; Nicholls, E. E., and Stainsby, W. J.: Etiology of Rheumatoid Arthritis, *Tr. A. M. Phys.* 45:210, 1930.

18. Dawson, M. H.; Olmstead, Miriam, and Boots, R. H.: Agglutination Reactions in Rheumatoid Arthritis: I. Agglutination Reactions with Streptococcus Haemolyticus, *J. Immunol.* 23:187 (Sept.) 1932.

19. Keefer, C. S.; Myers, W. K., and Oppel, T. W.: Streptococcal Agglutinins in Patients with Rheumatoid (Atrophic) Arthritis and Acute Rheumatic Fever, *J. Clin. Investigation* 12:267 (March) 1933. Cox, K. E., and Hill, D. F.: Chronic Arthritis: Serological and Clinical Studies, *Arch. Int. Med.* 54:27 (July) 1934. Blair, J. E., and Hallman, F. A.: Streptococcal Agglutinins and Antistreptolysins in Rheumatoid (Atrophic) Arthritis, *J. Clin. Investigation* 14:505 (Sept.) 1935.

20. Dawson, M. H.; Olmstead, Miriam, and Jost, E. L.: Agglutination Reactions in Rheumatoid Arthritis: III. Comparison of Agglutinins and Precipitins for Streptococcus Haemolyticus in Rheumatoid Arthritis, *Sera, J. Immunol.* 27:355 (Oct.) 1934.

who never developed actual joint changes. On the selected group of patients fulfilling these requirements, 156 sedimentation tests, 141 Vernes tests, 102 Schilling counts and 132 streptococcus agglutination reactions (with four strains) were performed. Over half the patients were tested more than once, and many were followed at intervals of from four to six weeks for six months or more.

The patients along with the results of the various tests are listed in table 1. The extent of involvement and the degree of activity as well as the total severity were graded in each case at the time the tests were

TABLE 4.—Percentages of Instances When One Test Was Positive and Another Negative

		Test Negative			
		Sedimentation Rate	Vernes Test	Schilling Count	Streptococcus Agglutination Reaction
Percentage of tests positive	Sedimentation rate.....	..	36	10	37
	Vernes test.....	5	..	10	21
	Schilling count.....	8	40	..	35
	Streptococcus agglutination reaction.....	4	18	4	..

performed. The subsequent fate of each patient is noted, with the duration of follow-up.

Sedimentation tests were done according to the method described by Rourke and Ernstene.²¹ In this method the factor of dilution is done away with by the use of heparin as an anticoagulant, venous stasis is avoided, and the tests are performed within three hours at room temperature (20-25 C.). The rate is measured during the period of most rapid settling and expressed in millimeters per minute. Readings of the distance the cells have fallen at the end of an hour or every fifteen minutes as employed in other methods are influenced by the packing of cells during the latter part of the period and by aggregation in the first part. Finally, the hematocrit is determined and correction made for the cell volume percentage of each specimen. In this way, false positives resulting from anemia are avoided. Any method which fails to correct for this anemia factor is subject to error and therefore is not to be relied on. We chose to use this method because along with other workers,²² we believed it less subject to inaccuracy than the older methods employed. Vernes resorcinol tests were performed according to the modified method of Baylis,¹⁴ as described. Doubtful readings, listed as \pm , were considered negative. Differential counts were done according to Schilling's²³ modification of Arneith's method. Band forms, juveniles and myelocytes were lumped together and the percentage of total polymorphonuclear leukocytes was reckoned. A count of young cells of over 8 per cent was considered a positive Schilling test. Agglutination reactions were performed following the methods described by Dawson and his co-workers.¹⁶ Dilutions of the serum were not carried out beyond 1:320, because previous work seemed to show no consistent correlation between the agglutination titer and the

clinical status of the patient. Readings were carefully made by two observers, with results declared positive only when definite agglutination was present. Serums agglutinating the organisms in a titer of 1:160 or over were considered positive, but only if the reactions in lower dilutions were stronger. In most cases, four strains of hemolytic streptococci were used, one (AB₁₃) a "typical" strain of Cecil's, recovered from a patient with rheumatoid arthritis, the others from nonarthritic patients. NY₅ was isolated from a patient with scarlet fever, and C₁₇ and RB₅ from patients with rheumatic fever. In figuring the results, if one of the four strains showed agglutination in a dilution of 1:160 or over, the test was considered positive.

RESULTS

In table 2 are shown the results obtained with each test. It will be noted that the sedimentation rate and the Schilling count show a high degree of correlation, with the former slightly ahead. In contrast, the Vernes test and the agglutination reaction are positive in only slightly over 50 per cent of these active cases of rheumatoid arthritis. In the case of the agglutination reaction, if we take each strain separately, results varying from 20 per cent (AB₁₃) to 34.6 per cent (C₁₇) are present. It is evident then that, as far as the diagnosis of activity goes, both sedimentation rate and Schilling count are far superior to the other two tests.

We have mentioned that the agglutination reaction has usually been found negative in the first six months of the disease.²⁴ Dawson, Olmstead and Boots¹⁸ also found a definite relationship between the duration of the disease and the agglutination titer of the serum and that patients having had the disease under a year showed positive agglutination tests in only 33 per cent compared to 71 per cent positive in the group of longer duration. Table 3 shows a similar analysis of our figures. We find only a slight difference between the two groups in the case of the Vernes test and the agglutination reaction. On the other hand, a marked difference is seen in the sedimentation rate, the Schilling count, and in agglutination of three of the streptococcus strains when considered

TABLE 5.—Relationship to Severity

	Severity	Patients	Tests	Positive percentage
Sedimentation rate....	Mild.....	11	59	53
	Moderate and severe	35	115	95
Vernes test.....	Mild.....	11	35	31
	Moderate and severe	33	104	67
Schilling count.....	Mild.....	7	26	85
	Moderate and severe	25	74	88
Streptococcus agglutination reaction.....	Mild.....	11	33	55
	Moderate and severe	35	97	53

separately (C₁₇, NY₅ and AB₁₃). However, it must be remembered that any conclusions drawn from these figures may be misleading, since the first group was much smaller than the second. Furthermore, the first group contained fewer advanced cases. The majority of the first group were often tending to go into a remission following the initial attack. As regards the patients' age, we agree with Nicholls and Stainsby that there is not sufficient correlation with the results of the agglutination reactions to enable us to rule out other variables. The same is true of the other three tests.

24. Nicholls, E. E., and Stainsby, W. J.: Further Studies on the Agglutination Reaction in Chronic Arthritis. *J. Clin. Investigation* 12: 505 (May) 1933.

21. Rourke, M. D., and Ernstene, A. C.: A Method for Correcting the Erythrocyte Sedimentation Rate for Variations in the Cell Volume Percentage of Blood. *J. Clin. Investigation* 8: 545 (June) 1930.

22. Cecil, R. L.: Rheumatoid Arthritis: A New Method of Approach to the Disease. *J. A. M. A.* 100: 1220 (April 22) 1933. Oppel, Myers and Keefe.¹⁵ Steinberg.¹⁹

23. Schilling, Victor: The Blood Picture and Its Clinical Significance (Including Tropical Diseases): A Guidebook on the Microscopy of Blood, translated and edited by R. B. H. Gradwohl, St. Louis, C. V. Mosby Company, 1929.

As might be expected, only the sedimentation rate and Schilling count show any degree of agreement. In ninety-six instances in which the two tests were performed simultaneously on thirty-six patients, they agreed in eighty cases, or 83 per cent. When the other tests are similarly compared, agreement is seen only about 50 per cent of the time. Table 4 shows in percentage figures the proportion of instances when one test was diagnostic, i. e., positive, while the other was negative. Again, the sedimentation rate and Schilling count are superior, being incorrect in 10 per cent or less, while, if the Vernes test and agglutination reaction are compared with the other two, we find them excelled in 35 per cent or more instances.

In table 5 we have attempted to divide the cases into two groups, the first with few objective changes and a

COMMENT

In general, agreement is reported by other workers, as far as the reliability of the sedimentation rate is concerned. All disclose either 90 per cent or over of their cases of definite rheumatoid arthritis with increased sedimentation rate or, when actual figures are not given, uniform agreement of this test with the clinical diagnosis. In respect to Schilling or filament-nonfilament counts, conclusions are not unanimous, with results ranging from 52 per cent,²² 68 per cent,²⁵ 78 per cent²⁶ and 91 per cent²⁷ to 100 per cent.²⁸ In one large series,²⁷ the figures are rendered less valuable by the nondifferentiation of cases of rheumatoid and hypertrophic arthritis. The French workers²⁹ state that the Vernes test is of distinct value but give no actual percentages. In regard to the agglutination reaction,

TABLE 6.—Results of Tests in Six Cases

M. G. H. Arthritic Series*					Sedi- mentation Rate	Vernes Test	Schilling Count	Streptococcus Agglutination Reaction Dilution Positive			
Number	Age, Years	Duration	Test	Date				Strain C12	Strain NY6	Strain RB3	Strain AB13
48.....	47	18 mos.	41	2/ 5/32	0.50	++	..	—	—	320	—
			42	3/ 1/32	0.55	—	..	—	320	20	320
			43	5/ 6/32	1.00	—	10	—	—	320	—
123.....	63	4 mos.	69	12/18/31	1.70	+	..	—	—	..	..
			70	2/ 5/32	0.36	±	24	—	20	320	—
			71	3/18/32	0.42	±	16	—	—	40	—
			72	4/29/32	0.72	—	22	160	—	—	—
161.....	24	2½ yrs.	103	1/14/32	0.99	±	22	20	20	20	20
			104	2/19/32	0.70	—	10	320	80	320	20
			105	3/18/32	0.90	—	20	320	320	—	320
			106	4/ 8/32	1.18	±	..	320	320	20	320
			107	5/13/32	0.85	—	10	320	320	80	—
			108	6/10/32	0.85	±	12	320	320	—	—
175.....	46	6 yrs.	96	12/18/31	1.50	++	..	..	..	..	..
			97	1/ 8/32	0.90	—	13	20	20	20	—
			98	2/19/32	1.10	±	17	—	—	20	—
			99	3/11/32	1.33	+	11	20	—	—	—
			100	4/ 1/32	1.50	..	17	..	..	..	..
			101	5/13/32	1.14	+	..	—	—	—	—
182.....	42	2 yrs.	111	2/12/32	0.85	—	..	320	320	..	..
			112	3/11/32	0.86	++	..	320	320	20	20
			113	4/15/32	1.00	—	31	80	20	20	40
			114	5/20/32	1.05	+++	20	80	80	40	20
195.....	50	19 yrs.	123	12/18/31	0.48	+	..	—	—	—	320
			124	1/ 8/32	0.63	—	37	—	—	..	..
			125	4/23/32	0.79	—	22	—	—	320	..
			126	6/10/32	0.80	+++	30	—	—	320	20

* The majority of these patients with rheumatoid arthritis have been studied in great detail and have been followed in a special follow-up clinic since they first came under observation. The case number refers to the Massachusetts General Hospital rheumatoid arthritic series and will be employed in all subsequent reports pertaining to the detailed analysis of the statistical data collected on this group of patients since 1930.

relatively mild involvement and the second representing a more severe type of the disease, with many joints affected and often with ankylosis and deformity. In this, the agglutination reaction and Schilling counts show little difference in the two groups, while the sedimentation rate shows a slightly greater percentage of positive reactions in the second group and the Vernes test a marked difference.

A small number of cases of other types of arthritis were incidentally tested in the course of the study but have not been included in the tables. In these, the sedimentation rate was increased in two cases of acute gouty arthritis, five cases of gonorrheal arthritis and in over 50 per cent of tests performed on seven patients with hypertrophic arthritis, with the Vernes and Schilling tests showing a similar but lower number of positives. The agglutination reaction was positive in gout in one out of four tests, in gonorrheal arthritis in two out of six tests and in hypertrophic arthritis in two out of four. Results in so few tests are of course inconclusive but do point toward the nonspecificity of all four tests.

there is an interesting shift in the reported results. The first reports by Cecil, Nicholls and Stainsby¹⁷ showed nearly 100 per cent agglutinability of "typical" strains by serums from patients with rheumatoid arthritis. The analysis of the figures given in later articles shows a much lower degree of positivity (Dawson¹⁸ 67 per cent, Nicholls and Stainsby²⁴ about 40 per cent, Keefer¹⁹ 54.5 per cent, Cox and Hill¹⁹ 70 per cent, Blair and Hallman¹⁹ 84 per cent). The majority of the reported series approach more closely our figures (53.1 per cent). It must be remembered, however, that this percentage (53.1) in many instances applies to patients with serums agglutinating only one strain out of four. As shown in table 2, if the strains are considered separately, results from 20 to 34.6 per cent are obtained, with AB₁₃ (a "typical" strain of Cecil) lowest of all. We find a constant agreement, then, only in the case of the sedimentation rate.

25. Rawls, Gruskin, Ressa and Jordon.²⁵26. Steinberg.¹⁹27. Eaton.¹²28. Steinbrocker and Hartung.¹³29. Coste, Lacapère and Rapaport.¹⁵ Lacapère and Fénal.¹¹

There are a number of articles in the literature in which one of these tests is compared with another in a group of patients with rheumatoid arthritis. Dittges⁸ found seven cases out of thirty-seven in which the sedimentation rate was abnormal but without an associated increase in young polymorphonuclear leukocytes, an agreement of 81 per cent. In 210 simultaneous determinations done on fifty patients, Rawls and his co-workers¹⁰ found the two tests erring equally and agreeing in 77 per cent. Steinberg,¹⁰ in a smaller series, on thirty patients, concluded that the sedimentation rate was more accurate, with twenty-nine tests positive, while the Schilling count was increased in twenty-two instances. Agreement was seen in 78 per cent. Our own figures give the sedimentation reaction a slight advantage (92.2 to 87 per cent) and show agreement between the two tests in seventy-nine out of ninety-six tests, or 83 per cent. It would seem then that, although there is some variation in opinions expressed and figures given as to the value of the Schilling count when used alone, the results of direct comparison, with which our conclusions agree in the main, would place it nearly on a par with the sedimentation rate.

There are a few reports of simultaneous determinations of the Vernes test and sedimentation rate. One French author³⁰ believes that the former is less sensitive than the latter and does not always coincide. Others¹⁶ have found no especial parallelism and agreement in about two thirds of the cases. There is a suggestion then of corroboration of our finding that the Vernes reaction is far inferior (less than 60 per cent) to the sedimentation rate. We can find no reports of comparison between the Schilling count and the Vernes reaction. Again, the streptococcus agglutination reactions have been compared with other tests only twice—each time with respect to the sedimentation rate. Both Stainsby and Nicholls¹⁰ and Dawson, Olmstead and Boots¹⁸ state that the reactions are entirely unrelated. This is corroborated by our figures in regard not only to the sedimentation rate but also to the other two tests. In every case, agreement is present in 60 per cent or less, including the comparison with the Vernes reaction, an entirely nonspecific test but one showing a very similar percentage of positive tests in this group of patients with active rheumatoid arthritis.

Until the etiology of rheumatoid arthritis is known, the question of the specificity of the agglutination reaction will not be settled. Results with normal and pathologic control serums would show that when positive it approaches a diagnostic test, although certain exceptions render the distinction not entirely clear cut. The variations in agglutination titer in one patient in a comparatively brief time, not accounted for at present by clinical developments, may be seen in table 6 (excerpted from table 1). Patients 48, 125 and 181 all show wide swings from negative (1:80 or below) agglutination titers to positive in periods of a month or less. This unreliability has been brought out in Nicholls and Stainsby's paper²⁴ and by Cox and Hill.¹⁹ This variation is shared by the Vernes reaction (see patients 175, 182 and 195 in table 6), while the sedimentation rates and Schilling counts tend to remain relatively constant. The finding by Tillet and Abernethy³¹ of non-specific agglutinins for hemolytic streptococci (not heat killed but incubated at 37 C.) in various infections is suggestive that the suspension stability of this organism

may respond, like the red blood cells, to changes in the plasma proteins. At any rate, when we employ the agglutination reaction as a test for the presence of active rheumatoid arthritis we find that it is easily surpassed by two and equaled by one of three admittedly non-specific reactions.

Which of the four tests are of practical value for the clinician and really useful in following the disease? We believe at present that the agglutination reaction, while it may be of definite value in the investigation of this disease, both from difficulty of technic and from lack of uniformity of results, is not indicated in the routine study and treatment of patients with rheumatoid arthritis. The Vernes test, although simple in performance, suffers from relative inaccuracy (at least as shown by our results), and the degree of turbidity must be approximated unless a photometer is used. Results in the literature would indicate even more than our figures that the sedimentation rate is superior to the Schilling count. The latter, in addition, does involve a more laborious technic than the sedimentation rate, which should be further simplified and improved when photographic methods³² are perfected. In doubtful cases, in which the sedimentation rate is negative, the performance of a Schilling count in addition might be of diagnostic significance.

In our later experience we have employed the sedimentation rate alone as the best "measuring stick" of active disease in the case of rheumatoid arthritis. In several thousand tests on all types of joint disease, we have found it entirely nonspecific but a valuable laboratory guide. We hope to report this large series of results in a subsequent paper.

SUMMARY AND CONCLUSIONS

1. On a group of forty-nine patients with active rheumatoid arthritis, four commonly employed "measuring sticks" were evaluated.

2. The sedimentation rate was found positive in 92.2 per cent of the tests, with the Schilling count only slightly less accurate (87 per cent). The Vernes test and streptococcus agglutination reactions were positive in approximately 50 per cent (58.3 and 53.1 respectively).

3. In cases of a year's duration or under, the sedimentation rate and the Schilling count were positive less often than in cases of longer duration. The other two tests showed approximately similar results in each group.

4. The sedimentation rate was slightly more accurate in severe than in mild cases. The Vernes test was markedly so, while the other two showed little difference.

5. Our results agree in the main with those reported in the literature.

6. From the standpoint of practicability and accuracy, the sedimentation rate is the most useful laboratory test thus far in common use to aid in the recognition and evaluation of patients with active rheumatoid arthritis.

32. Sulkowitch, H. W.: A Photographic Suspension Stability (Sedimentation Rate) Apparatus: A Preliminary Report, *Am. J. M. Sc.* 187: 85 (Jan.) 1934.

30. Coste, F.: Sur la réaction à la résorcine de Vernes dans le rhumatisme chronique, *Paris méd.* 2: 544 (Dec. 26) 1931.

31. Tillet, W. S., and Abernethy, T. J.: Serological Reactions with Hemolytic Streptococci in Acute Bacterial Infections, *Bull. Johns Hopkins Hosp.* 50: 270 (April) 1932.

The Accurate Attitude in Medicine.—The tendency to disparage the so-called accurate or scientific attitude in medicine, and to make much of the practical doctor or surgeon who is superior to the microscope and other laboratory accessories, is rapidly passing.—Cushing, Harvey: *Consecratio Medici* and Other Papers, Boston, Little, Brown & Co., 1928.

THE TREATMENT OF HEART DISEASE COMPLICATING PREGNANCY

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That the heart output increases during pregnancy has been demonstrated in both animals and the human being.¹ In a normal pregnancy the cardiac output begins to increase at about the fourth month, from which time on there is a steady rise until term is reached. This increase in cardiac output during normal gestation, expressed in terms of volume of blood passing through the heart in unit time, is approximately 50 per cent. Following delivery the minute volume slowly returns to normal, reaching its nonpregnant level within four weeks. Unfortunately, as yet, we are ignorant of the cardiac output or work during the period of labor, although there is reason to believe that it is further augmented during parturition.

It is evident that such a marked increase in the minute volume of the heart during gestation must be of

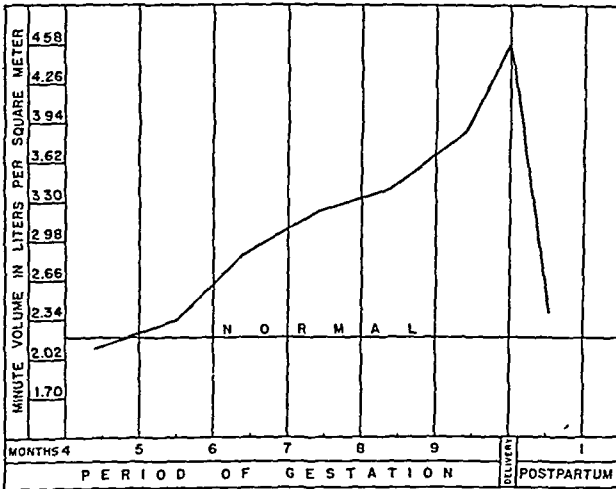


Chart 1.—Average cardiac output during normal pregnancy.

the utmost importance in patients suffering from some cardiac disturbance. This additional work placed on the heart as a result of pregnancy and labor may be more of a strain than the diseased organ can stand, and the outcome may be, and often is, heart failure resulting in death. The proper care of a pregnant patient with heart disease is one that taxes the best judgment of the obstetrician, and whenever possible he should have the cooperation of a well trained cardiologist or internist.

In order that pregnant patients suffering from cardiac involvement may obtain the best possible care during the antepartum period, the Lying-in Hospital maintains an antepartum and postpartum cardiac clinic, manned by the departments of obstetrics and medicine of the New York Hospital, of which the Lying-in Hospital is an integral part. The patients attending this cardiac clinic are seen and examined by both the obstetrician and the cardiologist at frequent intervals throughout the antepartum period. The details of treatment and hospitalization will be discussed later.

From the Department of Obstetrics and Gynecology, Cornell University Medical College and New York Hospital.

1. Stander, H. J.; Duncan, E. E., and Sisson, W. E.: Heart Output During Pregnancy, *Am. J. Obst. & Gynec.* 10:44-50 (Jan.) 1926.
Stander, H. J., and Cadden, J. F.: The Cardiac Output in Pregnant Women, *Ibid.* 24:15 (July) 1932.

A study of 563 hospital discharges, representing 418 pregnant patients suffering from cardiac disease and cared for in the Lying-in Hospital during the period Sept. 1, 1932, to Dec. 31, 1936, is the basis for this paper.

INCIDENCE

During the period studied, four and one-third years, there were 14,157 obstetric patients discharged from the hospital, and of this number 563 were discharged with the diagnosis of cardiac disease, an incidence of 3.97 per cent. As stated in a previous publication,² we are convinced that more importance should be placed on cardiac disease as a complication of pregnancy, especially because of this high incidence of about four in every hundred gravid women and because of the effect pregnancy has on this complication.

MORTALITY

In table 2 we present the maternal and infantile mortality in the group of cardiac patients, as compared to the mortality rates for all the patients in the Lying-in Hospital during the period studied, and labeled in the table as "total clinic patients," a term we use in subsequent analyses, with identical meaning. It will be observed that the maternal death rate in the cardiac group is more than twice as high as in the group of "total clinic patients," being 7.1 per thousand in the former and 2.8 per thousand in the latter. The infantile mortality remains approximately the same in the two groups. It should be noted that we consider the term "infantile mortality" to include all stillborn and deadborn infants weighing more than 1,500 Gm. as well as those babies dying during the first two weeks following birth.

The types of cardiac lesion encountered are shown in table 3. Patients suffering from mitral stenosis and insufficiency constitute more than 40 per cent of all cardiac patients, while approximately 20 per cent have both mitral and aortic lesions. Mitral stenosis alone accounts for 18 per cent of the cases, and aortic lesions for only 1.44 per cent. It is interesting that only two, or 0.48 per cent, of the 418 patients had definite congenital heart lesions. From this table it is clear, as Carr and Hamilton³ have pointed out, that rheumatic heart disease accounts for about 90 per cent of the cases.

Although we have been hesitant² to adopt the functional classification of heart disease, it has now become with us an established method of studying heart disease in pregnancy. The reason for this is that by experience we have found that this classification is of greater value in the evaluation of the cardiac involvement and thus a better aid in prognosis than the old anatomic classification, as used in table 3. This classification of the New York Heart Association is based on the functional capacity of the heart and is as follows:

Class 1. Patients with organic heart disease able to carry on ordinary physical activity without discomfort. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea or chest pain. Patients in this class do not show physical signs of cardiac insufficiency and rarely signs of active heart infection.

Class 2. Patients with organic heart disease unable to carry on ordinary physical activity without discomfort.

(a) Activity slightly limited. Ordinary physical activity causes undue fatigue, palpitation, dyspnea or chest pain. Patients in this class rarely show physical signs of cardiac insufficiency or signs of active heart infection.

2. Stander, H. J.: Cardiac Disease in Pregnancy, *Am. J. Obst. & Gynec.* 27:528 (April) 1934.

3. Carr, F. B., and Hamilton, B. E.: Five Hundred Women with Serious Heart Disease Followed Through Pregnancy and Delivery, *Am. J. Obst. & Gynec.* 26:824 (Dec.) 1933.

(b) Activity greatly limited. Less than ordinary physical activity causes fatigue, palpitation, dyspnea or chest pain. Patients in this class usually show one or more physical signs of cardiac insufficiency or the anginal syndrome or signs of active heart infection.

Class 3. Patients with organic heart disease and with symptoms or signs of cardiac insufficiency, at rest, unable to carry on any physical activity without discomfort. There is fatigue,

TABLE 1.—Cardiac Disease in 14,157 Obstetric Patients Discharged

Type of Discharge	Total Clinic Discharges	Discharges with Cardiac Disease	
		Number	Per Cent
..	759	32	4.21
..	11,246	386	3.43
..	1,822	136	7.46
..	9	5	55.55
..	321	4	1.24
Total.....	14,157	563	3.97

TABLE 2.—Incidence of Maternal Mortality Due to Cardiac Disease and Infantile Mortality in Cardiac Disease

	In Total Clinic Patients	In Cardiac Patients
Maternal mortality.....	0.28%	0.71%
Infantile mortality.....	4.24%	3.64%

palpitation, dyspnea or chest pain at rest. Patients in this class show marked physical signs of cardiac insufficiency or the anginal syndrome, or signs of active heart infection.

It will be seen that class 2 cardiac patients, i. e., those with organic heart disease who are unable to carry on their ordinary activity without discomfort, but not with symptoms or signs of cardiac insufficiency at rest, are further subdivided into two groups, 2a and 2b. The former subgroup rarely reveals physical signs of cardiac insufficiency or infection and in general is able to go through pregnancy and even labor without untoward developments, provided careful supervision is employed. Class 2b cardiac patients, on the other hand, generally show signs of cardiac insufficiency and may readily become decompensated. It is because of this serious possibility that we prefer to regard class 2b as clinically similar to the definite class 3 group, in which are the patients with cardiac insufficiency at rest, and in the part of this paper dealing with treatment we shall discuss the class 2b and class 3 in one group. This, we believe, is to the best interests of the patient.

In table 4 we have grouped the 418 cardiac patients according to this functional classification. Unfortunately the hospital records are not clear enough on 151 of these patients to permit a definite grouping, and we have therefore thought that it would give a more correct index of incidence to list separately the 267 patients in whom the classification was definite and well established. In this group we find that class 1 accounts for 51.69 per cent, class 2a for 34.46 per cent, class 2b for 11.98 per cent, and class 3 for 1.87 per cent. Fortunately, therefore, the majority of our cardiac patients, i. e., over 86 per cent, fall into classes 1 and 2a, the two mild types, and only about 14 per cent belong in the severe types, classes 2b and 3. Of the four women who died as a result of heart disease in our group of 418 patients, two definitely belonged to class 3, and the other two probably belonged in class 2b.

A definite history of either rheumatic or scarlet fever, chorea or frequent sore throat was reported in 58.4 per cent of the 387 cardiac patients, and from only slightly more than 40 per cent were we unable to elicit such a

history. It is apparent, therefore, of what great significance a careful past history becomes in the routine care of all pregnant women.

In table 6 we give the type of delivery in the cardiac patients. Approximately 8 per cent of these patients had an abortion, by which we indicate delivery prior to viability, or of a fetus weighing less than 1,500 Gm. Of the remaining 386 cardiac patients, 69.1 per cent had spontaneous deliveries and 30.9 per cent an operative type of delivery.

As many of the operative deliveries, shown in table 6, were not performed because of the cardiac disease, we have constructed table 7, which is an analysis of all types of intervention or operative delivery done because of the heart disease. This shows that, for this indication, about 3 per cent had a therapeutic abortion, 4 per cent cesarean section and 12 per cent forceps delivery. It may be said then that, in one out of every five pregnant women suffering from cardiac disease, interruption of the pregnancy or operative delivery becomes the procedure of choice.

The last table (table 8) is a comparison of the maternal deaths from cardiac disease and those from the other common causes in our clinic during each year from 1932 to 1936 inclusive. The comparison is most instructive, since it places cardiac disease as one of the most important causes of maternal mortality, contrary to the usual teaching. The clinic population in our hospital is not a selected group but is made up of both registered and unregistered patients, of all types and races; i. e., a fair representation of a cross-section of the city population.

Cardiac disease accounted for 10 per cent of all uncorrected maternal deaths in our total indoor and out-

TABLE 3.—Type of Cardiac Lesion (Abortions, Full Term and Premature Deliveries)

Lesion	Number of Cases	Per Cent of Total
Mitral stenosis and insufficiency.....	175	41.87
Mitral stenosis and insufficiency + aortic lesion	25	6.37
Mitral stenosis or insufficiency + aortic lesion..	53	12.68
Mitral stenosis	76	18.16
Aortic lesion	6	1.44
Chronic valvular disease (no further diagnosis)	21	5.02
Congenital lesion	2	0.48
Other types of cardiac disease.....	50	11.96
Total.....	418	100.00

TABLE 4.—Functional Classification of Cardiac Disease (Abortions, Full Term and Premature Deliveries)

Type	Cases	Per Cent Total	Per Cent of Classified
Class 1.....	138	33.01	51.69
Class 2a.....	92	22.01	34.46
Class 2b.....	22	7.66	11.98
Class 3.....	5	1.20	1.87
Total classified.....	267	63.88	100.00
Not classified in records..	151	36.12	
Total.....	418	100.00	100.00

door obstetric service during a four and one-third year period. The total uncorrected maternal mortality, including abortions and ectopic pregnancies, in this combined service is 2,251 per thousand patients discharged, or 2.324 per thousand live births.

TREATMENT

It is most essential that in every maternity hospital all pregnant patients with heart disease be studied in a special cardiac clinic throughout their antepartum

period. Every pregnant woman who comes to register at a hospital, clinic or physician's office should have a careful and complete examination, in which particular attention is paid to the heart. Too often is this neglected, and the patient proceeds to term with an unrecognized but easily demonstrable heart disease. The possibility of a cardiac lesion is one of the many rea-

TABLE 5.—*Previous Diseases in 387 Cardiac Patients (Abortions, Full Term and Premature Deliveries)*

Disease	Cases	Per Cent Total
Rheumatism.....	131	33.9
Rheumatism and scarlet fever.....	18	4.6
Rheumatism, scarlet fever and chorea.....	4	1.0
Rheumatism and chorea.....	11	2.8
Scarlet fever.....	17	4.4
Scarlet fever and chorea.....	8	2.1
Chorea.....	24	6.2
Frequent sore throats.....	13	3.4
Negative past history.....	161	41.6
Total.....	387	100.0

sons, and an important one, that all pregnant women must see a physician as early in pregnancy as possible. It is our practice that when heart disease is suspected or diagnosed the patient is immediately referred to our special cardiac clinic, where a thorough reexamination is performed. Should the condition warrant it, the patient is admitted to the hospital for a complete study of her cardiac condition; otherwise she is followed at frequent intervals in the cardiac clinic.

In general we may say that patients with class 1 or class 2a heart disease can be safely cared for in the office or antepartum cardiac clinic until about two weeks before term, at which time they should be hospitalized. This statement, however, should not be taken too literally, as each patient must be treated individually, as symptoms or signs may develop that make it imperative to admit to the hospital a class 2a, and sometimes even a class 1 cardiac patient, a month or more before the expected date of delivery. The pulse and respiration rates are among the best indications as to the behavior of the heart. Undue fatigue, palpitation, dyspnea and

TABLE 6.—*Treatment of Cardiac Disease in 418 Patients*

Abortions.....	32
Spontaneous.....	7
Operative:	
".....	3
".....	3
".....	8
".....	2
".....	8
Salpingectomy for ectopic.....	1
Deliveries.....	25
Spontaneous.....	356
Operative:	
Forceps.....	76
Cesarean section.....	25
Manual removal of placenta.....	4
Insertion of bougie.....	5
Breech extraction.....	7
Version and extraction.....	2
Total.....	119
	418

chest pains are further signs of which a careful note and record must be made. An untoward development in any one of these is sufficient cause to hospitalize and provide forced rest in bed—the best treatment for most of these cases. The patients in class 1, and many of those in class 2a, will deliver spontaneously after two weeks' rest in the hospital, without undue rise of the pulse and respiration rates during labor. However, it is well to use forceps on full dilatation of the cervix in

a certain number, the maternal pulse and respiration rates being used as the main index for such intervention. A pulse rate of over 110 and respiration rates of 28 or over are sufficient reasons to save the patient the further strain on the heart incidental to the voluntary muscular work of the second stage of labor. It must be emphasized that any anesthesia producing partial asphyxia, such as nitrous oxide, is contraindicated in the delivery of cardiac patients. We prefer ether anesthesia, administered by the open drop method, for all our cardiac patients.

In patients belonging definitely in class 2b and class 3, much earlier and longer hospitalization is essential. It is often necessary to readmit the patient to the hospital two or more times during the pregnancy. An analysis of the hospital admissions of our 418 cardiac patients reveals the fact that of this number, twenty-two women had 136 hospital admissions before delivery, an incidence of approximately six admissions per patient. Forceps delivery, to obviate the second stage of labor, is performed far more frequently in these patients. The use of digitalis compounds is of great help, in our experience, in preparing these patients for the ordeal of labor. This may also be said for those patients in whom we perform cesarean section because of the heart condition. When the patient is definitely in class 3, our treatment is more radical than in the class

TABLE 7.—*Incidence of Operative Treatment, with Cardiac Disease as the Indication, in 418 Cardiac Patients*

Operation	Number	Percentage
Therapeutic abortion.....	12	2.87
Cesarean section.....	17	4.07
Forceps.....	50	11.96
Induction.....	1	0.24
Other (operative + nonoperative).....	338	80.86
Total.....	418	100.00

2b patient. When there has been a definite break in compensation either prior to or during the pregnancy, we generally advise cesarean section with sterilization. Such patients are admitted to the hospital early in pregnancy; adequate rest and digitalis therapy is provided and the section is performed when the patient has attained her optimum condition and no further improvement appears possible. The operation is performed under open drop ether anesthesia and in the presence of a competent internist. During the past four and one-third years we have performed such cesarean sections on patients definitely in class 3 and have lost only one mother. Of course, it is not advisable to allow some of these class 3 cardiac patients to proceed to viability, and therapeutic abortion or miniature cesarean section becomes the treatment of choice. In our 418 cardiac cases, therapeutic abortion for the heart condition was performed in twelve.

An analysis of the past history as well as careful questioning of our 418 cardiac patients revealed the astounding fact that 189, or 49.8 per cent, of them were wholly unaware that they had cardiac disease. This finding further impressed us with the absolute necessity of a careful heart examination on every pregnant woman at her first visit to her physician.

The important factors in the handling and treatment of cardiac disease in pregnancy are:

(a) All pregnant patients must consult their physician early in pregnancy.

(b) A thorough examination, including the heart, must be made at the time of the first visit.

(c) If the past history, symptoms, signs or examination reveal heart disease, however mild, the patient should be followed in a special cardiac clinic or by her physician in consultation with a competent internist.

(d) All pregnant patients with cardiac disease must be in a hospital during the last two weeks of gestation and must be delivered in the hospital.

(e) Patients with class 1 and 2a heart disease may be delivered spontaneously, provided the pulse and respiration rates are not markedly augmented or no untoward symptom or sign such as dyspnea or cyanosis develops, in which event it is advisable to obviate the second stage of labor by the application of forceps on full dilatation of the cervix.

(f) Patients in class 2b and class 3 should be hospitalized early in pregnancy in order that as accurate an evaluation of the cardiac reserve as possible may be made in order to decide whether or not the pregnancy should be allowed to proceed.

(g) Should it be deemed advisable to interrupt the pregnancy, it becomes the obstetrician's further responsibility to decide whether a therapeutic abortion followed by birth control, a therapeutic abortion followed by tubal sterilization or a miniature section with sterilization is the proper treatment. This decision will

TABLE 8.—A Comparison of Cardiac Disease with the Other Causes of Maternal Mortality

Cause of Death	1932	1933	1934	1935	1936	Per Cent of Total
Cardiac disease.....	16.7%	.....	15.4%	9.1%	10.0%	
Hemorrhage (antepartum + postpartum).....	25.0%	.....	50.0%	23.1%	18.2%	22.5%
Lung conditions (pneumonia, infarct).....	50.0%	16.6%	33.3%	15.4%	.....	17.5%
Infection, (intrapartum + .....	.....	16.7%	.....	15.4%	27.3%	15.0%
.....	.....	16.7%	16.7%	7.7%	9.1%	10.0%
.....	25.0%	16.7%	.....	.....	9.1%	7.5%
.....	.....	.....	.....	7.6%	9.1%	5.0%
Ruptured uterus.....	.....	.....	.....	.....	9.1%	2.5%
Other.....	.....	16.6%	.....	15.4%	9.0%	10.0%

depend on a number of factors, such as the age and parity of the patient, the duration of the pregnancy, the number of living children, the desires of the patient and her husband and, lastly but most important, the severity of the cardiac involvement.

(h) On the other hand, should it be deemed advisable to let the pregnancy proceed to viability or full term, the patient may have to remain in the hospital for months or be readmitted several times during the pregnancy in order to maintain a careful and vigilant watch over the cardiac condition. It may be necessary to digitalize the heart and to continue digitalis therapy.

(i) The treatment, when viability or term is reached, in this relatively small but important group of patients will depend on the cardiac condition in each individual. When there has been a history of definite cardiac failure and the heart is now compensated, it is our practice to perform a cesarean section with tubal resection. In the other patients in this group it is usually advisable to deliver by forceps.

(j) No anesthesia producing varying degrees of asphyxia should be used in cardiac patients, at the time either of delivery or of operation. Open drop ether anesthesia has given us the best results.

(k) Cardiac patients who are first seen or admitted to the hospital in labor with acute heart failure must be placed in an oxygen tent and delivery effected as soon as possible, but consistent with sound obstetric

principles. So far we have delivered none of this group of patients by cesarian section. Cardiac stimulants, such as ouabain, are of course of the utmost assistance in these patients.

Three charts are presented to portray the behavior of the pulse and respiration rates in a class 2a cardiac patient delivered spontaneously, in one in which forceps delivery became advisable and in a class 3 cardiac patient delivered by cesarean section, respectively. It is in the cardiac patient that the pulse and respiration rates assume particular importance, since they so frequently become the main indication for operative intervention. Both charts 2 and 3 show the manner in which these rates return to normal shortly after delivery is effected.

SUMMARY

There is a definite effect of gestation on the cardiac output, as shown by experimental work on the minute volume in both animals and the human being. The amount of work performed by the heart starts to increase during the first trimester of pregnancy and at term is approximately 50 per cent above the normal nonpregnant level. There can be

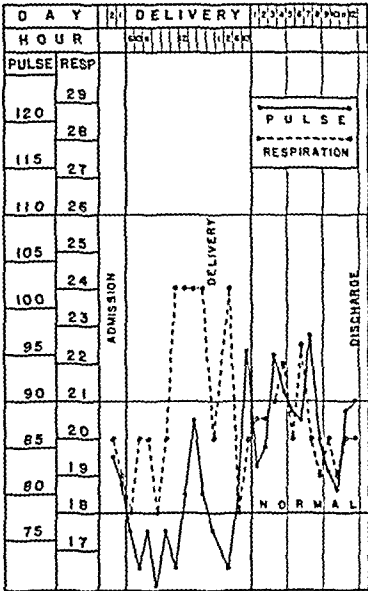


Chart 2.—Spontaneous delivery in class 2a cardiac disease.

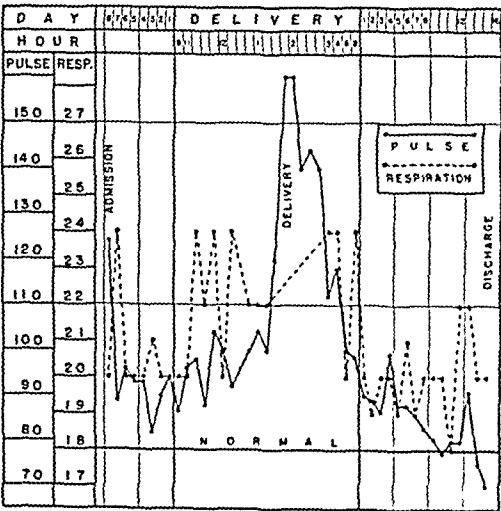


Chart 3.—Forceps delivery in class 2a cardiac disease.

little doubt, although as yet we have no experimental proof, that labor demands a further and perhaps marked increase in the minute volume of the heart.

In our series 418 pregnant patients suffered from cardiac disease. About 85 per cent of these patients had the milder types of involvement, which we group as class 1 and class 2a heart disease. The remaining patients, representing 15 per cent of the total, suffered

from serious heart disease (class 2b and class 3) and form the group in which occurred our maternal deaths from heart disease. To a large extent cardiac disease accounts for the total uncorrected maternal mortality in a series of 18,207 consecutive obstetric discharges during a four and one-third year period in the Lying-in Hospital.

CONCLUSIONS

1. In 14,157 obstetric patients discharged from the hospital, the incidence of cardiac disease is 3.97 per cent.

2. The maternal mortality is almost three times as high in cardiac patients as in the total hospital patients.

3. Rheumatic heart disease accounts for more than 90 per cent of our pregnant cardiac patients.

4. We are of the definite opinion that the functional classification of the New York Heart Association is of more value as an aid in the treatment of the pregnant patient suffering from heart disease than is the anatomic classification.

5. Only about 41 per cent of the group of 418 cardiac patients studied gave no history of rheumatic fever, scarlet fever, chorea or frequent sore throat.

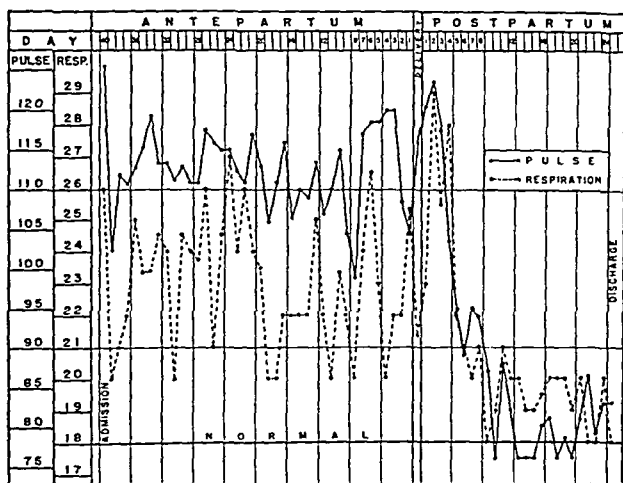


Chart 4.—Cesarean section with sterilization in class 3 cardiac disease.

6. About 50 per cent of the 418 cardiac patients were wholly unaware, at the time they first consulted a physician in their pregnancy, of the existence of a cardiac disease.

7. Hospitalization and complete rest are the greatest aids in the treatment of heart disease in pregnant women.

8. Digitalis and its compounds are of definite help in the severe types of this disease.

9. Increased pulse and respiration rates, dyspnea and cyanosis, undue fatigue, palpitation and chest pains are the outstanding signs and symptoms in the evaluation of the cardiac condition.

10. The treatment in class 1 and class 2a cardiac patients consists of hospitalization two weeks before term, followed by spontaneous delivery or in a small number forceps delivery at the beginning of the second stage.

11. The severe types, class 2b and class 3, must be hospitalized earlier in pregnancy in order to decide whether the pregnancy should be allowed to continue, and, if so, delivery should be effected by forceps unless the patient falls in the class 3 category.

12. In those patients who have had a definite break in compensation it is advisable, after adequate hospitalization with digitalis therapy, to perform a cesarean section either at viability or at term, followed by sterilization.

530 East Seventieth Street.

CLIMATE AND RHEUMATIC HEART DISEASE

A SURVEY AMONG AMERICAN INDIAN SCHOOL CHILDREN IN NORTHERN AND SOUTHERN LOCALITIES

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The influence of climate on the prevalence, course and clinical picture of rheumatic fever has been much discussed though seldom accurately measured.¹ Wide-spread differences in clinical concepts about this disease which exist in different places, difficulties in clinical diagnosis and the absence of specific diagnostic tests have made it practically impossible to determine its prevalence with accuracy in any given locality, much less to compare its prevalence in several localities. Despite the lack of accurate data, however, there is general agreement that the disease is common and severe in temperate zones, that it is less common in warmer and subtropical climates, and that it is rare in the tropics.² But comparative prevalence determinations in which identical diagnostic criteria have been used in different geographic or climatologic locations are practically nonexistent. Consequently it has been the major object in this work to make such determinations under conditions that were moderately controlled.

METHODS

For measuring the geographic prevalence of rheumatic heart disease we have determined the rates (or percentage) of such cases as could be found among three groups of Indian school children in northwestern and southwestern sections of this country. The choice of these Indian populations has rested on the fact that there is a general similarity from the standpoint of race among some North American Indian tribes which is not found among other groups of Americans, and also that, regardless of their geographic locality, there is a general similarity of their living conditions. Furthermore, within certain Indian reservations in this country many of the adults and almost all of the younger children have spent their lives within a few miles of the place of their birth. Their illnesses, therefore, should be truly representative of local, living and climatic conditions. In fact, several such groups of Indians may furnish more valuable information about

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1. Accurate determinations on the prevalence of a disease which is not reportable are difficult enough to obtain but particularly difficult in a disease in which there is no diagnostic test, such as rheumatic fever or its sequelae. Data from hospital admission lists throughout this country or from private practice are of some value, though admittedly inaccurate. See discussion of Nichol's^{2a} paper and Climate and Rheumatic Fever, editorial, J. A. M. A. 108:210 (Jan. 16) 1937.

2. Most of the recent literature on this subject has been summarized by (a) Nichol, E. S.: Geographic Distribution of Rheumatic Fever and Rheumatic Heart Disease in the United States, J. Lab. & Clin. Med. 21:588 (March) 1936. See also (b) Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931.

the geography of disease than do most school populations in this country. Particularly is this true of the Southwest, a region which has been included in this survey, where the white school population contains a large percentage of recent immigrants from other regions.

A final controlled condition used in this study is that the same methods of gathering data and the same diagnostic criteria have been applied by the same two examiners in the different locations studied.

In planning the study, a section of the West was first outlined and a number of Indian reservations within this section were chosen (fig. 1). Permission for the privilege of proceeding with this work was first obtained from the Office of Indian Affairs, U. S. Department of the Interior.³ The reservations were then divided into a northern, a middle and a southern division, from which comparable groups of children could be examined. As will be seen from the map in figure 1, the two northern reservations (representing Crow, Shoshone and Arapahoe Indians) were located in Montana and Wyoming; the middle reservations (largely representing Navajo Indians) were located in northern New Mexico and northern Arizona, and the southern reservations (representing Pima and Papago Indians) were located in southern Arizona. It will also be seen that the middle group is not separated from the southern one by nearly as great a distance as it is from the northern one. But in spite of their proximity to one another the isothermal lines show a difference of 20 degrees F. in the average temperature (which is largely the result of a difference in altitude) between the southern and the middle group, and this is considerably greater than the temperature difference of 5 degrees F. existing between the middle and the northern group.

Another climatic condition that concerns the areas under surveillance appears in figure 2. Here the degree of moisture (precipitation) is shown on the sectional map. It will be seen that all the Indian reservations surveyed were in fairly dry areas but that the southernmost group is in a region with precipitation figures ranging from only 3 to 10 inches a year.

It was our object to examine about 1,000 children of the same age distribution from each of these three (northern, middle and southern) groups.

DIAGNOSTIC CRITERIA

Obviously the diagnosis of clear-cut rheumatic heart disease offers little difficulty, but mild cases offer considerable difficulty. Most of the cases encountered in a survey of this type are mild, and of course inactive, and unfortunately the diagnosis of just such forms as these requires a large element of personal judgment. It has been our effort throughout, however, to include only the more definite cases.

In approaching the problem we have assumed from the onset that the great majority of children showing rheumatic carditis will present evidence of mitral insufficiency or stenosis and that in such cases systolic or presystolic murmurs will probably be present in the region of the cardiac apex. In justification of this approach it should be emphasized that we have followed the rule that most systolic murmurs do not indicate the presence of any organic heart disease.

Nevertheless a search for such murmurs generally represented the starting point of our cardiac examinations.

All the examinations recorded in this study were performed by one of us, and most of the doubtful cases were seen by both of us. In the actual performance of the cardiac examinations the following procedure was used:

The children were stripped to the waist and unless abnormal conditions were present were examined only in the erect position. A few features besides those referable to the heart were included; namely, the degree of nutrition, evidences of infection of the upper respiratory tract and the size of cervical lymph nodes. For the cardiac examination the hand was placed on the precordium and the point of maximum impulse located.

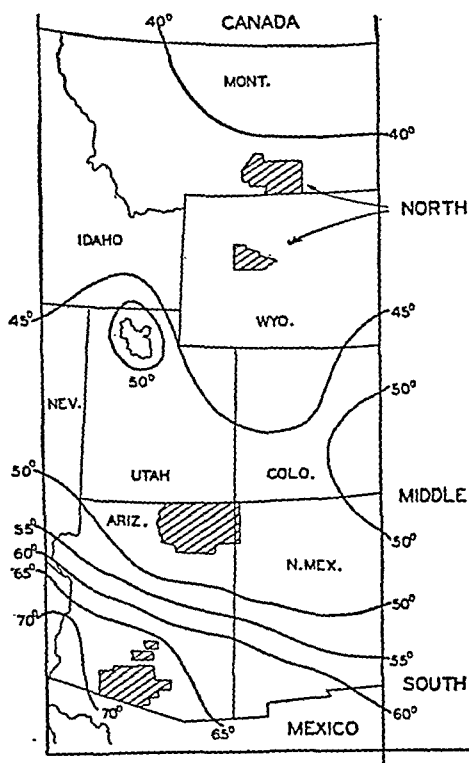


Fig. 1.—Sectional map of the United States showing (by shaded areas) the locations of the three groups of Indian reservations included in this study. The series of curved lines (isotherms) indicate average annual temperatures.

The stethoscope was then placed on the apical region, the midprecordium and the base of the heart. If no abnormalities were found on palpation and auscultation, the child's heart was considered normal. No attempt was made to determine the size of the heart by percussion, unless abnormalities detected either by palpation or auscultation were found. The usual time consumed in the examination of children with normal hearts was about two minutes per child.

As a rule we paid little or no attention to soft systolic murmurs heard only at the pulmonic area and have not included them in the recorded results. All murmurs heard in the midprecordium were, however, recorded. Of these, systolic murmurs were the most frequently heard, and we have classified them arbitrarily, i. e., regardless as to where they seemed to arise, into three types, according to the diagram in figure 3.

Type I systolic murmurs represent a loud murmur, usually maximal in the general region of the apex,

3. Dr. J. G. Townsend, Director of Health, Office of Indian Affairs, Washington, D. C., gave this permission, and many medical officers in the Indian Service, whose names are too numerous to mention here, were generous in their cooperation and support of this work.

which can be heard in the area indicated; that is, besides covering the midprecordium it extends laterally beyond the left nipple line and often downward. Such murmurs were present in the majority of cases that we have listed as definite rheumatic heart disease.

Type II represents a systolic murmur which is not as loud as type I and can be heard laterally as far as the left nipple line but not beyond. It is in the interpretation of these type II murmurs as to whether they

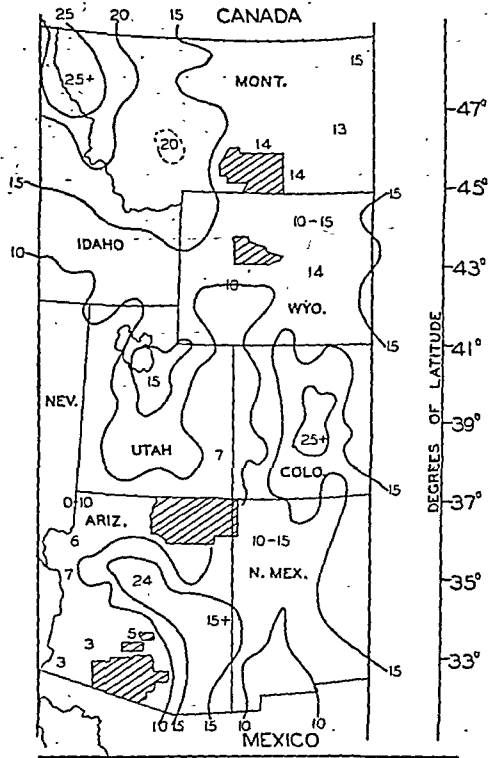


Fig. 2.—Sectional map, similar to that in figure 1, showing by isohyetal lines or scattered figures the normal annual precipitation (expressed in inches). Degrees of north latitude appear on the right of this map.

were "functional" or "organic" that we have met our greatest difficulty, and in their presence we have examined the heart as carefully as the circumstances would permit, and with the subject lying on his back and also on his left side.

Type III is represented by a soft systolic murmur which is heard in the midprecordium but is also heard in the pulmonic area and is not transmitted laterally. It is our impression that the great majority of these murmurs are transmitted from the base downward. From the onset of this survey we did not consider them as of much significance as far as the diagnosis of rheumatic heart disease is concerned, and evidence accumulated in the course of the study substantiated this belief.

In interpreting our type II and III systolic murmurs as a starting point in the diagnosis of rheumatic heart disease, the following other aids to diagnosis were occasionally used:

A history of rheumatic fever, if present, was regarded as of positive importance in the presence of questionable cardiac signs. Such histories were obtained, however, in a very small number of questionable cases.

Some of the other signs, which have been regarded as aids to a positive diagnosis, were the presence of cardiac enlargement that could not be explained on any other basis, an increase in the area of impulse to the left, accentuation of the first sound at the apex, accen-

tuation of the pulmonic second sound, and accentuation of the murmur when the patient was lying on his left side.

The diagnosis of congenital heart disease rested on the cardiac manifestations, the presence of cyanosis, clubbing of the fingers and the history.

RESULTS

Rheumatic heart disease rates found in the school children within the three areas covered by this survey appear in table 1. For their proper interpretation they should be compared with similar rates determined in school children from other sections of this or other countries, but unfortunately few such comparisons can be made. For, although there are many statistics on the observed prevalence of heart disease in school children, they have been largely compiled from data obtained in the course of routine physical examinations in which the diagnostic criteria for either heart disease or rheumatic heart disease have not been defined and the methods of examination of the heart have of necessity been more cursory than those employed here. This question has been discussed in a previous publication in which juvenile, organic heart disease rates ranging from 0.1 to 2.1 per cent have been collected from the literature (up to 1934) and tabulated geographically.⁴ It is our impression that such crude rates, so far as they concern rheumatic heart disease, are considerably lower than those which would have been found in this survey. This impression has been strengthened by the fact that, using the identical methods outlined in the present report, one of us (J. R. P.) has previously determined the prevalence of rheumatic heart disease in a group of school children within the city of New Haven, Conn., and found it to be considerably higher than that obtained the previous year by the school physicians.⁴

But to return to the figures in table 1. Here it appears that Indian children from certain of the northwestern reservations show a high rate of rheumatic heart disease. It happens to be twice as high as that (2.2 per cent) determined by the same method among urban New England school children living at a somewhat more southern latitude, although in a climate far more damp. Among the thirty-one children found to have rheumatic heart disease in the northwestern Indian

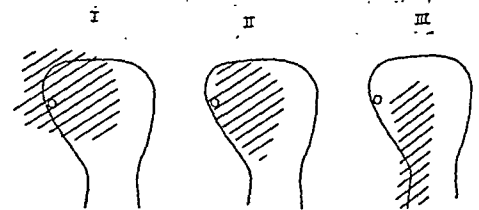


Fig. 3.—Diagrammatic cardiac outlines on which are indicated the sites (shaded areas) where the three types of systolic murmurs recorded in this study were heard. The small circle roughly marks the site of the left nipple.

group, about a third of them proved to have mitral stenosis, and also in about a third of them a history of an illness compatible with rheumatic fever was obtained. In about half of the latter group (with a story of illness) hospital records were available. These results indicate that the Crow, Shoshone and Arapahoe Indians, which were the northern tribes observed, are

4. Paul, J. R.; Harrison, E. R.; Salinger, Robert, and DeForest, G. K.: The Social Incidence of Rheumatic Heart Disease: A Statistical Study in New Haven School Children, *Am. J. M. Sc.* 188:391 (Sept.) 1934.

quite susceptible to rheumatic fever and that they often suffer from its most serious complication.⁵ No difference in the rheumatic heart disease rates was found among these three different northern tribes and no apparent difference between those of mixed blood as compared with those of pure blood.⁶

In the middle division of Indian reservations (from northern Arizona and New Mexico—largely representing Navajos) the rheumatic heart rate was found to

TABLE 1.—*Rheumatic Heart Disease Rates in Three Different Locations**

Location of Reservations	Latitude North	Climatic Conditions		No. of Indian Children Examined	No. with Definite Rheumatic Heart Disease	Per Cent with Rheumatic Heart Disease
		Temperature	Precipitation			
North	44°-46°	42.5°	10-14	688	31	4.5
Middle	26°-37°	47.5°	7-10+	1,106	21	1.9
South	32°-33°	67.5°	3-10	1,019	5	0.5

* For purposes of comparison, attention is called to the fact that the prevalence of rheumatic heart disease has been found to be 2.2 per cent among 2,624 urban and rural school children similarly examined in 1934 in and about the city of New Haven, Conn.⁴

† Approximate average normal temperature for the year in degrees Fahrenheit.

‡ Normal annual precipitation in inches.

be 1.9 per cent, or less than half that found among the tribes farther north. Here again a third of the twenty-one Indians proved to have mitral stenosis and in about the same percentage a history compatible with that of rheumatic fever was obtained.

In the southernmost group (southern Arizona—largely representing Pimas and Papagos) rheumatic heart disease was found to be rare. Only five cases were found in about 1,000 children examined, and there was only one case of mitral stenosis.

OTHER HEART ABNORMALITIES

Mention has been made that the presence of various (three) types of systolic murmurs (fig. 3) was recorded in the course of this survey. Actual prevalence figures for each type are not listed in this report but it is of significance that our type III, midprecordial systolic murmurs (heard also at the base, rather than laterally) were found with equal prevalence in all three (northern, middle and southern) groups. This is in sharp contrast to the geographic prevalence of our type I murmurs (transmitted laterally) and is a finding having some bearing on the clinical interpretation of systolic murmurs.

Examples of congenital heart disease (or congenital cardiac abnormalities) are limited to those types which are most apt to be detected by auscultation alone. Seven such cases (about 0.2 per cent) were found in the entire number (2,813) of children examined. Included among these seven was one case of dextrocardia and two definite cases of patent ductus arteriosus. The remaining four were probably examples of inter-ventricular septal defects.

Other cardiac conditions included one case of old tuberculous pericarditis, five cases of unexplained cardiac enlargement, three of unexplained tachycardia and three of extrasystoles.

5. A high prevalence of rheumatic heart disease has been previously recorded among another Northern American Indian tribe; namely, the Menominees in northeastern Wisconsin. Hrdlička, Aleš: Tuberculosis Among Certain Indian Tribes of the United States, Bull. 42, Smithsonian Institution, Bureau of American Ethnology, Washington, D. C., Government Printing Office, 1909.

6. This is in contrast to the results found in tuberculosis among some of these same Indian tribes in which a relationship between the degree of Indian blood and the incidence of tuberculous infection was found. Aronson, J. D.: Personal communication to the authors.

Extracardiac abnormalities noted in the course of our examinations which are worth mentioning include the high and more or less equal prevalence of mild infections of the upper respiratory tract—largely colds, present in all three groups (northern, middle and southern), the high and almost equal frequency with which enlargement of the posterior cervical lymph glands was encountered, and the high prevalence of infestations of the scalp with pediculus capitis.

POSSIBLE SOURCES OF ERROR

Obviously the rheumatic heart disease rates listed in table 1 cannot be satisfactorily compared with one another without a consideration of the factors that may influence them. For instance, unless the children from each major geographic division are of comparable age, the carditis rates are not comparable.⁷ The age distribution of the children in these three divisions is not identical, but their degree of similarity is sufficient to allow a comparison of several of the different age groups. This appears in table 2. The three age groups of 7 to 9, 10 to 12, and 13 to 15 years offer the most significant figures.

Another point that may have some bearing on our observations is the difference in physical types and degree of nutrition existent between Indians of some of the different tribes. This has been well illustrated by the difference between the Arapahoe children of the North and the Pima children of the South. Arapahoese are plains Indians, for the most part "meat eaters," and the children, at least as they were brought in from their homes at the opening of the schools, often appeared undernourished. Pima Indians are agricultural and subsist largely on a carbohydrate diet, and the children under similar circumstances were often greatly overnourished. In comparing the weights of Indian children from these two tribes with the average normal weights of white American children of comparable ages and heights, we found that about 45 per cent of the

TABLE 2.—*Rheumatic Heart Disease Rates in Different Age Groups*

		Age Groups*					
		5-6	7-9	10-12	13-15	16-19	19+
North division	Number of children in age group.....	80	204	209	142	49	4
	Per cent with rheumatic heart disease.....	0	3.9	8.1	4.2	..	..
Middle division	Number of children in age group.....	61	153	203	312	297	75
	Per cent with rheumatic heart disease.....	0	4.4	2.0	1.5	1.3	1.3
South division	Number of children in age group.....	114	226	229	227	77	6
	Per cent with rheumatic heart disease.....	0	1.0	0.3	0	1.3	..

* Rates have not been determined unless the age groups contain more than fifty children.

Pima children were "overweight" (10 per cent being as much as 35 pounds [16 Kg.] or more "overweight") and but 8 per cent were "underweight," whereas among the Arapahoe children 15 per cent were "overweight" and 41 per cent were "underweight." Consequently in determining the rheumatic heart disease rates in

7. A serious source of error may exist in data concerning the age of North American Indians. In some tribes the parents do not seem to know the ages of their children. Under these circumstances "ages" have been assigned to many of the children in this series by school teachers. Some appreciation of their accuracy can be obtained from height weight tables. It is our impression that about two thirds of the ages recorded in our series are reasonably correct. In the other third (and this applies mainly to the middle division) there is a probable error in many of the children of about \pm 1 year.

these two particular groups of Indian children the difference lies not only in their geographic separation but also in their physical type. In one group there is a large percentage of apparently undernourished children with thin chest walls and easily heard heart sounds, and in the other there are many fat children with thick chest walls. What effect this difference in degree of nutrition may have on the actual prevalence of rheumatic heart disease is, of course, unknown, but what effect it may have on the detection of mild cases of rheumatic heart disease should be considered. Some cases of rheumatic heart disease may have been overlooked in the Pima children, owing to the poor audibility of heart sounds and perhaps to the difficulty in determining the size of the heart. This may have influenced our results, but it is our belief that such a source of error has been slight. Even if the error in this group were as great as the omission of one case of rheumatic heart disease in every 100 children examined, our results would still point to an appreciable decrease in the rheumatic heart disease rates in the Southwest as compared with the Northwest.

COMMENT

It has been intimated earlier in this article that the influence of climate on the prevalence of rheumatic fever is a subject much discussed but less frequently defined and that there has been a dearth of accurate data on the subject. Despite this lack of accurate data there has been, however, general agreement that the disease is common and severe in the temperate zones, that it is less prevalent in warmer (subtropical) climates, and that it is rare in tropical climates. With this impression the results presented in this paper in general agree, and certain figures are presented which we believe are significant because of the moderately controlled conditions under which they have been obtained.

On the other hand, there has been little general agreement as to whether the clinical picture of rheumatic fever is the same in the North as in the South. It has even been suggested that the southern form of the disease may be characterized by the absence of joint symptoms and, without these warning signals of acute arthritis and chronic muscle pain, rheumatic carditis may develop in the south more insidiously and with greater frequency than is generally supposed.⁸ From our own results the notion that rheumatic carditis may develop with considerable unsuspected frequency in the Southwest finds no support, for regardless of the fact that the northern rate used for comparison was found to be unusually high (4.5 per cent) the southern rate (0.5 per cent) seems unusually low.

The high rate (4.5 per cent) found among the northern Indian tribes raises a question of some interest because the element of cold, or more particularly dry cold, has not usually been regarded as the sole climatic feature that favors a high prevalence of the disease. On the other hand the element of cold coupled with dampness has long been incriminated as one of the primary conditions favoring the spread of rheumatic fever,

as has also the influence of crowding, such as urban as opposed to rural life. Consequently, it is remarkable to find a higher prevalence in relatively dry Montana and Wyoming (normal annual precipitation from 10 to 15 inches) among rural Indian children than that found among urban children in the vicinity of New York City (normal annual precipitation 45 inches). This suggests that either a high susceptibility exists for the disease on the part of some Indians or that something is present in their living conditions that is particularly conducive to the spread of the disease. Whatever such factors may be, they remain to be analyzed. Attention may be called, however, to the fact that although the Indians included in this survey represent a rural (as opposed to an urban) population, the degree of crowding that must occur during the winter months among their family groups probably rivals or even exceeds that found within tenement houses in city slums; for the Indian family group often includes three generations, their winter dwelling is generally a one room affair, and Montana winters are long.

SUMMARY

The different rates with which rheumatic heart disease may be found in school children in different sections of this country is a valuable method for determining the geographic prevalence of rheumatic fever. Groups of Indian school children are particularly favorable for such determinations because of their homogeneity from the standpoint of race and of living conditions and because of the stability of the populations within many of the Indian reservations of the West.

From a survey of Indian children it has been shown that in the cold though relatively dry climate of Wyoming and Montana the prevalence of rheumatic heart disease (4.5 per cent) is high, in comparison with rates determined in New England (2.2 per cent), whereas in the warm though dry climate of southern Arizona it is correspondingly low (0.5 per cent). In other words, rheumatic heart disease is almost ten times as frequent among western Indians living in regions close to the Canadian border as it is among similar groups living close to the Mexican border.

It is probable that the clinical course of rheumatic fever in the Southwest may be milder than that usually encountered in the North, but no evidence was found in this survey suggesting that the apparent mildness of the clinical picture of rheumatic fever in the Southwest may allow rheumatic heart disease to develop with an unsuspected frequency comparable to that seen in more northern climates.

Theory of Cause of Allergy.—Studying a large number of allergic families and comparing them with normal controls, Haag has come to the conclusion that there is no evidence that allergic diseases may be considered psychoneuroses or that mental conflict is of any major significance in their etiology. Since a hereditary predisposition is the basis of allergic diseases, all positions in the family circle should show equal incidence of such disease. Since first-born children in all families and youngest children in large families showed the greatest frequency of allergic diseases, some special factor must be present there. The author finds an explanation in the type of nutrition. First-born children, and the youngest children, where older brothers and sisters spoil them, receive special care and are frequently overfed. He regards overfeeding in childhood of significance in producing allergic diseases.—Feinberg, S. M.: *Progress in Asthma and Hay Fever, J. Allergy* 8:289 (March) 1937.

8. McLean, C. C.: The Age Incidence and Climatic Variations in the Manifestations of So-Called Rheumatic Fever in White Children, *J. Pediat.* 2: 320 (March) 1933. See also discussion of paper by Bitzer, E. W., and Cook, G. L.: A Clinical Investigation of Incidence of Rheumatic Heart Disease in a Subtropical Climate, South, *M. J.* 27: 503 (June) 1934. Also editorial opinion expressed by Hench, P. S.; Bauer, Walter; Fletcher, A. A.; Christ, David; Hall, Francis, and White, Preston: The Present Status of the Problem of "Rheumatism": a Review of Recent American and English Literature on "Rheumatism" and Arthritis, *Ann. Int. Med.* 8: 1315 (April) 1935.

BASAL PERICARDITIS

A SIGN OF EARLY RHEUMATIC INFECTION

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There are numerous difficulties in making a diagnosis of a low grade active rheumatic state. The laboratory has been of little service in this regard. One of us¹ observed adventitious friction-like murmurs, somewhat musical in character, in the majority of children who at various times experienced one or several symptoms of childhood rheumatism, such as muscular and joint pains, paroxysmal abdominal pain,² sore throats, stiff neck, involuntary twitchings resembling tics,³ pallor, weight fixation and persistent low grade elevation in temperature (to be found only when carefully looked

The adventitious sound of mild plastic rheumatic pericarditis is best heard in the region of the left second and third costosternal junctions, although it may also be heard at the apex. It is friction-like, musical (at times) and of variable quality—from faint to harsh. It is apt to be systolic in time but is often diastolic and only occasionally of the double or “to and fro” type, and it has no definite points of transmission but may be audible over surrounding regions, depending on its volume. Its intensity and character often vary from beat to beat. It is never totally obliterated by deep inspiration, although the phases of respiration do alter its volume somewhat. It becomes louder with the patient in the prone position. It is accompanied by an accentuated second pulmonic sound.

This friction-like murmur at times may be inconstant; indeed, transitory. It may disappear some variable time following the arrest of the disease process, although in most cases it is present for many years after the

Differential Diagnosis*

Murmur	Mild Pericarditis†	Mitral Stenosis	Mitral Regurgitation	Functional
1. Time.....	May be systolic or diastolic; may vary during a single examination; rarely “to and fro”	Presystolic or diastolic	Systolic	Systolic
2. Character.....	Friction-like but variable	Rough, rumbling type	Soft, blowing	Soft
3. Intensity.....	Second left costosternal junction; occasionally also at apex but may vary during a single physical examination	Apex	Apex	Base of heart (pulmonary area); occasionally at apex
4. Transmission.....	None	May be audible in axilla (but not transmitted)	To axilla and back	None
5. Stability of character and intensity	Exceedingly changeable in intensity and character; it may vary from beat to beat, from examination to examination, from day to day	Fixed in character; may vary in volume, depending on cardiac action	May change over a period of many months or years if organic, owing to contraction of the scar around the orifice and slow development of mitral stenosis‡	Not variable, except after exercise
6. Age frequency.....	Seen in early childhood, 3 years to 12 years	From 12 years up, most frequent past 15 years	Any age	Any age
7. Percussion dulness.....	Normal size	Slightly enlarged	Left sided hypertrophy	Normal size
8. Roentgenogram.....	Straightening out of left border	Prominent pulmonic cone and left auricular hypertrophy, and frequent dilatation	Mitral configuration	Normal size, shape and position, unless murmur is caused by dilatation of valve ring
9. Electrocardiogram.....	Frequently normal with exception of occasional changes seen in the active rheumatic state	P wave changes; right axis deviation	Left axis deviation	Normal
10. Outcome.....	Frequently disappears	Permanent, as a rule, in presence of sinus rhythm	Permanent if organic; functional type may disappear	May disappear permanently

* The material for this table has been collected from our own case histories, Temple University Heart Station, Torresdale and Willow Crest convalescent homes.
† Differentiated from aortic valvulitis by the fact that the murmur of the latter is usually transmitted up to the vessels of the neck.
‡ This may account for the rarity with which one finds mitral insufficiency in adult life.

for). From our studies, these friction-like, at times somewhat musical, murmurs appear to be the earliest objective signs in low grade childhood rheumatism and are apparently due to pericarditis at the base of the heart, in the region of origin of the great vessels, involving the fold of the pericardium at the point of reflexion of the latter structure. The sulcus between the aorta and the pulmonary artery is an excellent dam for the accumulation of inflammatory exudates or transudates. It may be looked on as a peripulmonitis and periaortitis, although it is not entirely confined to these areas.

arrest of the rheumatic phase. It is noteworthy that, in quite a number of cases presenting this sign, orthodiagrams or teleroentgenograms reveal a straightening of the left border of the cardiac silhouette.

A differential diagnosis may be made between the adventitious sound due to mild plastic pericarditis and other murmurs in the usual accepted manner, as shown in the accompanying table.

A boy, aged 7 years, was referred from the pediatric clinic to our cardiac clinic because the child complained of anorexia and restlessness and the mother wanted a “good tonic” in order to build him up. It was most difficult to obtain a history from the mother, but after persistent grilling she admitted that the child would come to her bed at nights under the pretext of pain in the knees or ankles, but she knew it was only because he did not want to sleep by himself.

1. Wolffe, J. B.: Arch. Pediat. 50: 832 (Dec.) 1933.
2. Wolffe, J. B., and Brim, C. J.: The Abdominal Syndrome of Rheumatic Disease in Childhood, Am. J. Dis. Child. 52: 296 (Aug.) 1936.
3. Wolffe, J. B., and Sleane, Paul: Concepts in the Treatment of Chorea, Arch. Neurol. & Psychiat. 32: 662 (Sept.) 1934.

On physical examination we found the throat injected; the tonsils had been cleanly removed. The cervical glands were enlarged and slightly tender. The heart was slightly enlarged to the left and was overactive. The rate was 93 per minute. A loud systolic murmur was heard at the apex and base of the heart. Some members of the clinic thought that the murmur was transmitted to the axilla, while others felt that it was audible only because of its loudness. There was also a short systolic murmur heard over the second right costosternal junction, slightly transmitted to the vessels of the neck. The second pulmonic sound was accentuated.

The record further reveals that various members of the clinic recorded the time and character of the murmur at variance with their own previously recorded observations. The consensus was that the child suffered from a low-grade active rheumatic state, mitral valvular disease with regurgitation and aortic valvular disease.

The teleroentgenogram revealed a changing silhouette and a straightening out of the left border. The heart enlarged 1.5 cm. in nine months. The child's mother was very uncooperative.

One and a half years after attending the clinic this child was killed by an automobile. The autopsy taught us to reinterpret some of the adventitious sounds that we had thought to be due to valvular disease. The left ventricle was found to be slightly larger than normal. The pericardium was injected; at the base of the heart, around the entire area of the aortic and pulmonic sulcus, was a fuzzy, reddish, cotton-like fibrinous exudate, loosely adherent to the parietal and visceral pericardium. The mitral and aortic valves were injected but not distorted to the extent that the diagnosis of mitral regurgitation was justified. Aschoff bodies were found in the septum.

Several similar observations were made by us, one in an 11 year old girl who died of acute fulminating meningitis who showed signs of childhood rheumatism, on and off, and a boy of 6, who died as a result of uncontrollable chorea. The cardiac pathologic changes were similar to those described.

The excellent recent work of Gross⁴ has lent additional pathologic support for the existence of this sign; he says:

It has been mentioned that all of the active rheumatic cases presented in the peripulmonic sheaths either a microscopic pericarditis or an acute, exudative pericarditis and that in the inactive rheumatic series many cases showed scattered lymphocytes and large mononuclear cells in this area. It seems possible that this inflammatory condition of the pericardial mantle bears a causal relation to the markedly increased capillarization of the great vessel roots.

Many careful observers have been cognizant of these adventitious sounds. Their interpretation of it varies. In some clinics it is interpreted as a functional murmur and in others it is attributed to a mitral insufficiency due to dilatation of the mitral ring. Some interpret it as a mitral insufficiency or stenosis, disease of the pulmonary artery or aortic valvulitis, depending on the location of the murmur and the point of maximum intensity.

The frequency with which plastic pericarditis is seen escapes attention only because the disease at this stage is not fatal and the lesion is transitory in character and precedes the later valvular lesions by many years. It is well known that children who are properly cared for will conquer the active rheumatic phase and after several years the heart will be found to be perfectly normal on physical, x-ray and electrocardiographic examination. On the other hand, those who are treated symptomatically with so-called tonics, whose activities are not restricted, who are allowed cold water bathing during the summer and permitted to wear inadequate

clothing during the winter, with foci of infection overlooked, after a time show evidence of permanent cardiac pathologic changes.

The proper interpretation of these adventitious sounds is important. It prevents us from making the unwarranted diagnosis of fixed and irreparable valvular disease in cases in which the disease has not progressed to a stage of permanent pathologic state. It also acts as a suspicion arouser.

Every additional aid in the diagnosis of low grade active rheumatic disease should prove of utmost importance. It helps to focus attention on a very common, insidious disease which, when overlooked, often leads to permanent cardiac damage that may be preventable in the greater number of cases.

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ARTERIOSCLEROSIS AND THROMBO-ANGIITIS OBLITERANS

REPORT OF CASES AND TREATMENT

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Since the work of Buerger, who described the characteristic lesions of the vascular walls in thrombo-angiitis obliterans and thus distinguished it from other diseases of the blood vessels, attention has been directed, quite naturally, toward the differences between this disease and arteriosclerosis rather than to those features which they have in common.

Reports in the literature record several kinds of medical treatment of thrombo-angiitis obliterans which have resulted in arrest of the disease and a marked reduction in amputations, but we have failed to find reports of similar treatment applied in cases of arteriosclerosis. We have stressed the features common to the two diseases and, with therapy based on the likenesses of rather than on the differences between the two, we have obtained results in arteriosclerosis even more favorable than those in thrombo-angiitis obliterans.

The decreased peripheral blood supply in both diseases is due in part to functional constriction of the blood vessels and in part to organic changes in their walls, which cause them to become permanently narrowed and rigid. Increase in the viscosity of the blood was found in both diseases in our series. Vasospasm was a factor of as much importance in arteriosclerosis as in thrombo-angiitis obliterans, except in the advanced cases in which the walls of the vessels were rigid. In both diseases the vessels, particularly those of the extremities, were apparently unduly sensitive to vasoconstricting influences, as shown by skin temperature and oscillometric measurements after exposure to cold, after the use of tobacco and as the result of deficient diet. Vasoconstriction in these cases was prolonged beyond the normal response into more or less continuous vasospasm.

Patients with peripheral vascular disease often go first for treatment to the orthopedic surgeon, and since many of these patients have flat feet or some other orthopedic disorder the arterial disease, until far advanced, has all too frequently been overlooked. How-

4. Gross, Louis. *Am. J. Path.* 11: 631 (July) 1935.

From the Clinic for Peripheral Vascular Diseases, Department of Surgery, New York Hospital and Cornell University Medical College.

ever, recently the orthopedic surgeon has come to recognize early peripheral vascular disease—so much so that in some cases he has failed to treat a coexisting orthopedic condition after making a correct diagnosis of arterial disease. Thanks to these early diagnoses, the majority of the patients in our present series were seen before the vessels were entirely rigid and when the vasospastic element was still one of importance. Twenty-four of the ninety-nine patients with arteriosclerosis had had symptoms of only a few months' duration.

Our experience suggests that vasospasm is an underlying process in both diseases, without which other causative factors might be inoperative. Discussion of this point, however, is beyond the scope of this report, since from the point of view of treatment it is immaterial whether vasospasm is of primary or of secondary importance.

Obviously the aim of treatment is to increase the supply of blood to the extremities, and this we attempted to do first by relieving vasospasm, which results in the dilatation of those vessels with resilient walls, and, secondly, by decreasing the viscosity of the blood, which results in its easier passage through even narrow and rigid vessels.

TREATMENT OF VASOSPASM

Treatment consisted in the use of measures to eliminate five vasoconstricting influences: tobacco, improper diet, worry, undue physical exertion and cold.

1. *Tobacco*.—Those patients who continued to smoke or chew tobacco against advice failed to improve. While the discontinuance of the use of tobacco without other measures was insufficient to bring about lasting improvement in symptoms, we have found no lasting improvement in either disease without it.

It was not sufficient simply to tell the patient not to smoke or chew tobacco. Most of the patients had used it excessively for years. Many had been advised by physicians previously to stop its use but only two had done so. It was necessary to warn them clearly and repeatedly that unless they gave up tobacco completely and for good they could not improve and might even lose their limbs.

2. *Dietary Regimen*.—The patients were given a regimen high in calcium and vitamins because of its favorable influence on vasospasm. This regimen was given, however, even when the vasospastic element was apparently absent, as shown by failure of the skin temperature of the foot to rise after nerve block, because all the patients had been on diets deficient in calcium and in some of the vitamins and because of the general good effects of a diet enriched by these substances.

The chief sources of calcium were milk and cheese. When it was not feasible to include them in the diet, calcium salts were given instead. Concentrates of vitamin A and D were added, vitamin B was given in some form of wheat germ or yeast, and vitamin C was supplied in orange juice and tomato juice.

The dietary schedule given in table 1, designed for the optimum absorption of calcium, was used.

When for any reason milk could not be included in the diet, calcium was supplied in the form of the lactate or gluconate; 2.5 Gm. of calcium lactate, and 5 Gm. of calcium gluconate are equivalent in calcium to a pint of milk. To favor absorption these salts were administered at special times; namely, no nearer meals than four hours after and one hour before. The patients who did not drink milk received two doses of calcium salts a day, while those who drank a pint of milk

received one dose. In some cases with a history of unusually marked dietary deficiency in calcium one dose of calcium salts was given for a period of several weeks or more, in addition to the quart of milk in the diet.

Lactose was added to the diet of patients suffering from constipation, except in cases of diabetes. From two to six heaping tablespoonfuls a day effectively regulated the movements of the bowels in the majority of cases. Lactose may cause diarrhea, so that it was necessary to find by trial the amount suitable for each person. Increase in intestinal gas, which sometimes follows the use of lactose, was found to abate usually within the course of a few weeks.

Approximately 19,000 units of vitamin A, and 1,900 units of vitamin D (U. S. P. XI) were given daily in tablet form, three tablets twice a day, for several months.

3. *Worry*.—It was considered an important part of the therapeutic schedule to help the patient to gain insight into whatever domestic, economic or social difficulties might be disturbing him and to aid him in adapting himself to his limitations.

4. *Undue Physical Exertion*.—It is desirable that the work done by individuals with peripheral vascular disease be commensurate with their diminished peripheral

TABLE 1.—Diet Designed for Optimum Absorption of Calcium

	Required Food	Other Food Allowed
Breakfast	Orange or grapefruit juice Wheat germ (2 or 2 table- spoonfuls) Milk, 1 pint	Any fruit (raw or cooked) Coffee or tea, with sugar Bread, 1 slice, or 1 roll, with butter
Mid-day meal	Milk or buttermilk, 1 pint Vegetables (except potatoes, rice, spaghetti, corn) Fruit	Cheese Eggs* Bread, 1 slice, or 1 roll, with butter †
Evening meal	Tomato juice (any good canned variety, not the ready-prepared cocktail; seasoning may be added) or Pineapple juice Meat or fish	Any other foods desired

There should be intervals of at least five hours between meals
Nothing should be eaten between meals

* Eggs may be taken at breakfast if preferred.

† One starchy vegetable may be substituted for the bread.

blood supply. Accordingly, patients were advised against exertion to the point of pain in the extremities. During the early period of treatment in the clinic, or until considerable improvement was attained, as much rest as possible was advocated. Passive exercises as described by Buerger were considered an important part of the therapy. Patients were instructed to perform these exercises two, three or four times a day according to the following directions:

1. Lie down flat in bed, with shoes and stockings removed.

2. Raise both legs vertically into the air, bending them at the hips so that the soles of the feet face the ceiling. If this position is painful or impossible, the legs may be raised as nearly vertical as possible or may be rested against a wall to the side of the bed or against a chair placed on the bed.

3. Keep the legs raised exactly one minute (by the clock.)

4. Lower the legs; sit up in bed with the legs hanging freely over the edge of the bed (not touching the floor).

5. Keep the legs in this position for exactly one minute (by the clock). While they are hanging over the edge of the bed move the feet slowly back and forth and from side to side, at the ankle joint.

6. Lie down flat in bed; rest for one minute in this position.
7. Repeat entire process five times (that is, six times altogether).

5. *Cold*.—The following instructions were given for keeping the extremities properly warm: In cold weather out of bed the patient should wear (1) white cotton socks, over them (2) woolen stockings covering the knees, (3) woolen underwear, (4) fleece-lined shoes if

TABLE 2.—Analysis of Cases

	Arteriosclerosis (99 Cases)	Thrombo-Angiitis Obliterans (54 Cases)
Age of onset.....	Average: 56.1 years (32 to 83 years)	Average: 35.2 years (17 to 44 years)
Duration of symptoms.....	Average: 2.4 years (5 weeks to 20 years)	Average: 4.2 years (3 weeks to 13 years)
Duration of treatment.....	Average: 1 year (2 mos. to 2.4 years)	Average: 1.3 years (2 mos. to 8 years)
Sex.....	Male.....86 Female.....13	Male.....52 Female.....2
Religion.....	Christian.....48 Jewish.....51	Christian.....25 Jewish.....29
Native country.....	U. S. A.....32 Russia.....27 Germany.....9 Austria.....6 Hungary.....4 Italy.....1 Poland.....7 England.....3 Ireland.....3 France.....1 Czechoslovakia.....1 Canada.....1 Rumania.....3 Albania.....1	U. S. A.....23 Russia.....12 Germany.....2 Austria.....2 Hungary.....4 Italy.....5 Poland.....4 England.....1 Ireland.....1

much outdoors and (5) no tight or ill fitting shoes. In bed (1) he should wear very loose woolen stockings, or cotton wadding, 1 to 2 inches thick, made into boots to cover the feet, legs and knees and (2) he should use an electric light bulb (under a cradle) only if thermostatically regulated at temperatures of from 92 to 93 F.

Hot water bags and other heating pads were forbidden. Warm soaks for the feet and legs once or twice a day were advocated as follows:

1. Use one-half cupful of kitchen salt in 1½ gallons of warm water. Water should be comfortably warm—not too hot—soapsuds of castile soap may be used instead of salt, if preferred.

2. Soak feet once or twice a day for thirty minutes.

3. Dry feet thoroughly, being especially careful to dry the toes and the spaces in between the toes. Do not dry them roughly, taking care that the skin is not injured.

4. Dust plain talcum powder over and between the toes, so that you are sure the toes are dry.

Very light massage is allowed. We have failed to see good results from the use of diathermy, baking or hot and cold contrast baths; in fact, in a number of cases symptoms have become definitely worse after the use of these measures. Extremes of temperature are to be avoided, and heat may be as harmful as cold. Heat increases the metabolism of the tissues, which then require more blood, and, while vasodilatation is also produced by the heat, the impaired vessels are not able to supply sufficient blood for the added demand.

THE ADMINISTRATION OF SODIUM CITRATE

Sodium citrate was given from the beginning of treatment in all cases presenting severe symptoms, and it was given in other cases when improvement did not

follow the foregoing dietary regimen. It was administered by mouth when it was not feasible to give it by vein.

Sodium citrate reduces the viscosity of the blood, but the mechanism that brings this about is unknown.

Decreases in viscosity of from 1 to 2 points, which lasted for twenty-four hours or longer, followed the intravenous injection of 250 cc. of a 2 per cent solution of sodium citrate. Viscosity readings were not repeated in all the cases, but in some after a course of injections the reduction was apparently permanent, while in others the viscosity was lowered only during the period of injections and returned to its previous high level when injections were discontinued.

The normal viscosity ranges from 4 to 5.5 (average 4.5) while the range in our cases of arteriosclerosis and thrombo-angiitis obliterans was from 5.4 to 8 (average 6.5). Measurements were made with the Hess viscosimeter, in which columns of blood and water are compared in capillary tubes.¹

The benefit from the administration of sodium citrate in these two forms of peripheral vascular disease apparently does not come only from its effect on viscosity. In some cases, with initial viscosity readings within normal range, relief of symptoms speedily followed its use. Other chemical changes are produced by sodium citrate in the body, such as lowering of the fibrinogen of the blood and increasing the excretion of calcium, but we are without knowledge of their possible influence. Contraindications to the use of sodium citrate by vein are auricular fibrillation and cardiac disease with decompensation. Some hold the opinion that intravenous therapy is contraindicated in diabetes,

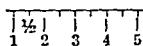
TABLE 3.—Complications

	Arteriosclerosis (99 Cases)	Thrombo-Angiitis Obliterans (54 Cases)
Hypertension (blood pressure 150+)...	56	3
Hypotension (blood pressure 110-)....	6	9
Coronary disease.....	12	0
Auricular fibrillation.....	2	0
Hemiplegia.....	2	0
Diabetes.....	13	2
Syphilis.....	3	0
Ulcer (gastro-intestinal).....	4	0
Trauma.....	2	0
Frost-bite.....	1	0
Paralysis agitans.....	1	0

TABLE 4.—Oscillometric Readings

	Foot	Ankle	Calf	Thigh	Wrist	Arm
Normal.....	1-2	2-3	3-5	5-8	2-3	3-6
Arteriosclerosis....	0-½	0-½	0-4	0-4	½-1	1½-2
Thrombo-angiitis....	0-½	0-½	0-3	0-4	½-1½	1-2½

Divisions on
Oscillometer



A reading of 1 signifies a swing of the oscillometer needle from 1 to 2, or from 2 to 3. A reading of 2 means a swing from 1 to 3, or from 3 to 5; 3 means a swing from 1 to 4.

but in some of the cases with this complication the good effects that followed the use of sodium citrate—relief of pain, healing of ulcers—were especially prompt in occurrence, and in none of the cases were any ill effects noted.

Unpleasant reactions—chills, fever, nausea and vomiting—may occur after the giving of sodium citrate as they do after the administration of other substances

1. Substitution of a mouthpiece for the rubber bulb on this instrument makes the handling of the test easier and the readings more accurate.

by vein, because of too speedy injection or insufficient cleaning of new rubber tubing, and they may also occur as a result of the method of preparing the solution.² These reactions, however, are avoidable, and no ill effect has occurred following daily injections given for many months. In one case as many as six injections a week for six months were given. In a

calcification of the vessels. Only twelve cases of thrombo-angiitis were so examined, and calcified vessels were seen in only one case.

OSCILLOMETRIC READINGS

The oscillometer determines the amplitude of arterial pulsation in a limb. Measurements are taken at the foot, ankle, calf, thigh, wrist and arm. Table 4 shows the range of oscillometric readings in the normal individual and in patients with arteriosclerosis and thrombo-angiitis obliterans in this series.

Oscillometric readings were reduced at the foot and ankle in all but three cases, or 98 per cent, and in these the disease was confined to the digital vessels. When symptoms occurred in one extremity only, readings were usually diminished in the other as well, though to a lesser extent. The upper extremities were involved in three cases of thrombo-angiitis obliterans (5.5 per cent) and in one case of arteriosclerosis (1.01 per cent).

We have analyzed the oscillometric readings according to the number of determinations rather than according to the number of cases because of the differences so frequently found between the two extremities in the same individual.

In the cases of thrombo-angiitis 160 determinations were analyzed. Of these seventy-five were at the level of the foot and eighty-five at the level of the ankle. Following treatment they showed thirty-six increased; three decreased and thirty-six unchanged at the level of the foot, and fifty-three increased, ten decreased and twenty-two unchanged at the level of the ankle. The range of increase or decrease may be seen in table 5.

TABLE 5.—Thrombo-Angiitis Obliterans (Results of Treatment)

	Foot		Ankle	
	Increase	Decrease	Increase	Decrease
To a trace*	16	0	0	0
To 1/6	7	2	4	0
To 1/3	11	1	14	6
To 1/2	2	..	20	0
To 1	..	..	12	4
To 1 1/2	..	..	3	0
To 2	..	..	..	0

* A trace is a reading of definite pulsations.

TABLE 6.—Arteriosclerosis (Results of Treatment)

	Foot		Ankle	
	Increase	Decrease	Increase	Decrease
To a trace	19	5	2	2
To 1/6	12	2	9	2
To 1/3	14	6	25	6
To 1/2	11	2	20	7
To 1	..	..	16	..
To 1 1/2	..	..	4	1
To 2	..	..	..	1
To 2+	..	..	2	1

few cases relief of pain dramatically followed two or three injections of the sodium citrate, but the average course consisted of three injections a week for about three months. In the beginning of treatment of the severest cases, daily injections of 250 cc. were given. These were reduced to three or two a week as improvement progressed. The solution was given at a rate of from 7 to 8 cc. per minute, an injection time of from thirty to thirty-five minutes for 250 cc.

ANALYSIS OF CASES

Ninety-nine cases of arteriosclerosis of the extremities and fifty-four cases of thrombo-angiitis obliterans have been treated according to the method described and have been followed from six months to three and one-half years.

Eighty-three patients in the arteriosclerotic group and all the patients with thrombo-angiitis obliterans smoked tobacco.

X-RAY EXAMINATION

X-ray examination of the vessels of the extremities was made in only twenty-two of the cases of arteriosclerosis. Of these, seventeen showed marked

TABLE 7.—Distribution of Increases in Readings

Increase from Initial Reading of Zero to	Foot	Ankle
A trace	19	3
1/6	6	3
1/3	3	3
1/2	0	1
	23	10

TABLE 8.—Type of Symptoms and Response to Treatment

	Thrombo-Angiitis Cases	Arteriosclerosis Cases
Pain on effort	54	99
Improved	42	85
Unimproved	12	14
Pain at rest	36	36
Improved	29	22
Unimproved	5	4
Ulcer	24	7
Improved	20	6
Unimproved	4	1
Gangrene	1	2
Improved	0	1
Unimproved	1	1

It may be seen that the largest number showed increases varying from a trace to one fourth at the foot, and from one fourth to 1 at the ankle.

There were thirty initial readings of zero at the foot level. Of the thirty readings, twenty-two were increased and eight were unchanged. Of the increased readings, sixteen increased to a trace, five increased to one eighth, and one increased to one fourth.

2. The following method of preparing sodium citrate was developed after considerable experimenting and is entirely satisfactory. Materials: (1) sodium citrate, c. p. tested purity, (2) sodium chloride, c. p. tested purity, (3) potassium biphosphate, monobasic, c. p. tested purity, (4) freshly distilled water, (5) "hardened" filter paper No. 575, Schleicher & Schuell, (6) suction flask, with metal filter cone (Berkefeld filter may be used instead of the filter paper). Method: 1. Dissolve 80 Gm. of the sodium citrate and 12 Gm. of the sodium chloride in 4 liters of freshly distilled water. 2. Allow to stand for thirty minutes. 3. Test the pH. If the pH lies between 7.2 and 7.6, proceed to the filtration. If not, adjust by the addition of a small amount (tip of a teaspoon) of potassium biphosphate. 4. Stand for thirty minutes, read the pH, and adjust if necessary. 5. Filter. 6. Pour into liter flasks. 7. Allow to stand for twenty minutes. 8. Inspect each 1 for cloudiness or "floaters." The citrate until clear of "floaters," then poured into liter flasks, which are covered with glass or metal caps fitting closely over the long necks of the flasks. The flasks are then autoclaved. After autoclaving the solution may be kept in the liter flasks for several months.

In the cases of arteriosclerosis there were 263 determinations: 121 at the level of the foot and 142 at the level of the ankle. They showed, after treatment, fifty-six increased, fifteen decreased and fifty unchanged at the level of the foot, and seventy-eight increased, twenty decreased and forty-four unchanged at the level of the ankle. The range of increase or decrease is given in table 6.

TABLE 9.—Correlation Between Severity of Symptoms and Improvement

Thrombo-Angiitis Obliterans						Arteriosclerosis					
			(79.6%) Improved						(83.8%) Improved		
Cases	Severity	Unimproved	*	**		Cases	Severity	Unimproved	*	**	
15	+	4	8	3		51	+	9	41	1	
15	++	3	12	0		38	++	4	23	6	
24	+++	4	17	3		10	+++	3	5	2	
		11	37	6				16	74	9	
Amputations = 2, 1 above the knee, 1 of a toe						Amputations = 3 above the knee					

ence on this relationship. Among those with readings of zero were several elderly persons with elevated blood pressure, whose extremities were warm and showed only slight color changes, and who had pain only on exertion. In these cases the high blood pressure increased the flow of blood through patent though narrowed and undilatable vessels, so that the supply was evidently adequate for a state of rest. On the other hand, some of the cases with only moderately reduced oscillometric readings presented severe symptoms. In these cases the blood pressure was too low to supply a sufficient onward thrust to the blood for proper nutrition of the extremities, even though some vessels were still capable of dilatation.

Increase in oscillometric readings cannot always be correlated with improvement in symptoms. Improvement in symptoms depends on increase of blood flow to the affected parts, which may be brought about by relief of vasospasm, widening and increase in number of small vessels (development of collateral circulation), increase in blood pressure, increase in blood volume and decrease in blood viscosity.

In the presence of narrowed vessels, incapable of dilating, improvement in symptoms may follow changes in the quality or increase in the volume of the blood, and in such cases oscillometric readings would not be increased. On the other hand, oscillometric readings might increase, but not sufficiently to be accompanied

TABLE 10.—Relationship Between the Duration of Symptoms and the Degree of Improvement

Thrombo-Angiitis Obliterans					Arteriosclerosis				
Duration of Symptoms	Unimproved	Improved			Unimproved	Improved			
		*	**			*	**		
0-3 months.....	0	2	1		4	6	0		
6 months.....	2	2	0		3	11	0		
1 year.....	3	7	2		1	19	3		
2 years.....	1	7	0		5	15	2		
3 years.....	1	6	1		1	7	1		
5 years.....	1	5	0		1	6	2		
10 years.....	0	4	1		0	5	0		
10+ years.....	3	4	1		1	5	1		
		11	37	6		16	74	9	

These results are similar to those in thrombo-angiitis, except that in this group changes up to one half occurred in 8 per cent of the readings, while in thrombo-angiitis they occurred in only 2 per cent. There were forty-three initial readings of zero at the foot level and eleven at the ankle. Increases occurred in twenty-eight of the forty-three readings and in ten of the eleven. They were distributed as in table 7.

These tables show that initially reduced readings did not improve enough to be classed within the normal range, except at the ankle in two cases of arteriosclerosis. When the initial readings were zero, the majority increased to a trace only.

Readings at the foot and ankle were taken every three to six months under as nearly like conditions as possible. They were taken as the last part of the examination of the patient when he was relaxed and at ease and when the extremities were warm. Warm baths or blankets were used to raise the temperature of persistently cold extremities.

Reduction in oscillometric readings, in the presence of normal cardiac output and blood pressure, may be correlated with diminished distensibility of the blood vessels. Under these conditions decreased dilatation is due either to vasospasm or to changes in the vascular walls with loss of their elasticity.

For the most part the cases with oscillometric readings of zero presented the severest symptoms. Blood pressure, however, was seen to exert a modifying influ-

TABLE 11.—Effect of Patient's Age on Improvement

Thrombo-Angiitis Obliterans					Arteriosclerosis				
Age, Years	Unimproved	Improved			Age, Years	Unimproved	Improved		
		*	**				*	**	
15-25.....	0	0	1		25-35.....	0	1	0	
26-35.....	4	10	2		36-45.....	1	6	0	
36-45.....	5	19	3		46-55.....	4	20	4	
46-55.....	2	8	0		56-65.....	9	33	2	
		11	37	6	66-75.....	1	14	3	
					76+.....	1	0	0	
							16	74	9

TABLE 12.—Results of Treatment

Thrombo-Angiitis Obliterans					Arteriosclerosis				
	Unimproved	Improved				Unimproved	Improved		
		*	**				*	**	
Diet only.....	0	4	1		1	24	6		
Diet plus sodium citrate by vein.....	8	26	5		10	28	3		
Diet plus sodium citrate by mouth....	1	3	0		3	16	0		
Diet plus calcium by vein.....	0	0	0		0	2	0		
Diet plus sodium citrate and calcium by vein.....	2	4	0		2	4	0		

by any marked improvement in symptoms. This occurred in eight cases of thrombo-angiitis obliterans and in ten cases of arteriosclerosis.

SYMPTOMS

The cases of thrombo-angiitis obliterans and those of arteriosclerosis presented like symptoms—pain on effort (including intermittent claudication), pain when at rest, ulcer and gangrene. We have analyzed these symptoms in terms of severity, type and response to treatment. Other symptoms that frequently occurred in both

groups were swelling, numbness, tingling and coldness of the extremities. Severity was reckoned as

- + = pain on walking more than one block (200 feet).
++ = pain on walking less than one block, and/or when at rest.
+++ = ulcer or gangrene.

Of the patients with thrombo-angiitis obliterans, fifteen were classified as +, fifteen as ++ and twenty-four as +++ severity. Of those with arteriosclerosis, fifty-one were classified as +, thirty-eight as ++ and ten as +++ severity.

Improvement in symptoms was reckoned as

- * = absence of pain when at rest, ulcers healed, some increase in walking distance.
** = absence of pain when at rest, ulcers healed, marked increase in walking distance.

Correlation between severity of symptoms and improvement is shown in table 9.

Of the unimproved cases in the two groups, only four and three respectively presented the severest symptoms.

Table 10 shows the relationship between the duration of the symptoms and the degree of improvement.

In thrombo-angiitis obliterans, improvement failed to occur in three long-standing cases in which symptoms had existed for more than ten years. On the other hand three cases with symptoms of one year's duration and two cases in which symptoms had been present for only six months likewise failed to show improvement. In arteriosclerosis thirteen of the sixteen failures occurred in cases presenting symptoms ranging in duration from only three months to two years. These results indicate that duration of symptoms did not exert marked influence on improvement.

The effect of the patient's age on improvement is shown in table 11.

In forty-three of the fifty-four cases of thrombo-angiitis obliterans, symptoms appeared in the second, third and fourth decades. Nine of the eleven failures were in this group. Of eight cases in which symptoms appeared in the fifth decade, only two failed to improve. In the arteriosclerotic group only one of eighteen cases in which symptoms appeared in the sixth and seventh decades did not improve. Advance in age in this series of cases did not prevent improvement of symptoms.

RESULTS OF TREATMENT

The results of treatment have been analyzed as shown in table 12. The dietary regimen and proper physical care, including Buerger's exercises, soaks and the like, were used throughout in all the cases. In addition, sodium citrate was given in the severe cases from the beginning of treatment and in other cases when improvement did not follow diet alone. In a few cases presenting persistent cramp, calcium was given by vein. In addition to the treatment outlined, sedatives were freely used for pain when necessary. Acetylsalicylic acid 0.6 Gm., with codeine 0.06 Gm., given once or twice a day, proved adequate in most of the cases.

It was not always possible to foretell how soon improvement might be expected. Some of the cases presenting ulcer or gangrene, in which early improvement seemed unlikely, showed remarkably speedy response to treatment. In some of the other cases improvement did not occur for from four to six weeks or even longer. Accordingly, unless symptoms actually became worse, treatment was continued in some cases for from two to three months, until it appeared reasonably sure that improvement would not take place.

REPORT OF CASES

The following cases have been selected as examples of their kind and for their response to treatment.

CASE 1.—S. R., a man, aged 83, in fairly good physical condition, complained of severe cramps in both legs for the past six months. His past history was negative except for a deficient diet. He smoked six cigars a day. For the past three months he had been able to sleep only with sedatives. He was unable to walk more than half a block without pain. His feet were cold and white. Previous treatment with massage, diathermy and hot and cold contrast baths did not improve his symptoms. X-ray examination of the vessels of both lower extremities showed considerable calcification. The dorsal pedal and posterior tibial arteries were not palpable. The oscillometric readings were reduced throughout both lower extremities. He was given the dietary regimen, 2.5 Gm. of calcium lactate orally, Buerger's exercises three to four times a day, warm soaks twice a day, and acetylsalicylic acid 0.6 Gm., with codeine sulfate 0.06 Gm. at night, when necessary. Smoking was prohibited. He was instructed to return to the clinic in two weeks. At that time injections of sodium citrate were to be given if improvement did not follow. These injections, however, were not necessary, since after four days the pain at night was entirely gone, he could walk several blocks without pain, and at the end of two weeks he was completely free from symptoms. The oscillometric readings had increased nearly to normal and both dorsal pedal and posterior tibial arteries were

TABLE 13.—Oscillometric Readings (Case 2)

	Foot		Ankle		Calf		Thigh	
	Right	Left	Right	Left	Right	Left	Right	Left
4/ 2/34.....	0	0	¼	0	1	Tr.	2	1½
12/17/34.....	0	0	¼	Tr.	2	¾	—	—

TABLE 14.—Oscillometric Readings (Case 3)

	Foot		Ankle		Calf	
	Right	Left	Right	Left	Right	Left
9/19/33.....	¼	⅙	1¼	¾	3½	3½
3/ 8/33.....	¾	¾	2	1	4	4

palpable. In spite of this man's age and x-ray evidence of calcified vessels, the predominating factor in this case was evidently vasospasm, which responded to treatment with dramatic quickness.

CASE 2.—J. B., a machinist, aged 70, had always been in excellent health until his present illness, which began three years previously with the symptom of intermittent claudication if he walked more than one block. This increased in severity. Two years later he began to have cramps in his calves at night. Three months before admission a dark spot appeared on the medial side of the left great toe and another over the lateral aspect of the same foot. These increased in size and the foot became painful and swollen. Both feet were cold and the left, when dependent, was a purplish red. He was admitted to the surgical pavilion. The popliteal and dorsal pedal arteries were not palpable, Buerger's sign was positive and the oscillometric readings (table 13) were markedly diminished. There was an area of dry gangrene extending from the base of the nail of the left great toe to its distal end under the nail, 2.5 by 2 cm. in diameter. There was another gangrenous area about 2 cm. in diameter over the prominence of the cuboid bone. The urine showed albumin, casts and sugar. The blood sugar was 0.221 Gm. per hundred cubic centimeters (normal, 0.07 to 0.09). The dismissal note from the surgical pavilion read "Patient has been treated with alcohol dressings, heat and negative pressure without change in local lesions. Diabetes controlled with diet and small doses of insulin. Patient advised to have amputation of left leg. Patient refused." He was then referred to the clinic for peripheral vascular diseases. He was given the dietary regimen (with only 1½ pints of milk), 2.5 Gm. of calcium lactate and the exercises. He also received sodium citrate by vein, 150 cc. in the first injection and thereafter 250 cc. every day and then every second day until he had

had fifty-six injections. After the second injection he was able to sleep at night without pain. Until then he had been kept awake with pain, sedatives giving him only short relief. After the sixth injection his foot was definitely improved. After the nineteenth injection the lesions were dry, shrunken and well demarcated. Healing was complete in four months. The patient now walks without discomfort if he walks slowly.

CASE 3.—E. M., a housewife, aged 53, had had for five years a dull ache in the left foot, which became worse on walking. The pain was not entirely relieved by rest and frequently spread

TABLE 15.—Oscillometric Readings (Case 4)

	Foot		Ankle		
	Right	Left	Right	Left	
11/ 2/34.....	0	0	1/4	Tr.	
2/ 1/35.....	Tr.	Tr.	1/2	1/2	After 1st course of citrate
7/ 8/35.....	1/2	Tr.	1	1/2	After 2d course of citrate
11/13/35.....	Tr.	Tr.	1/2	Tr.	After period of no injections
4/20/36.....	1/4	1/2	1/2	1/4	After injections of calcium

upward, involving the leg and thigh. She complained of numbness and tingling in the hands, and both feet and hands became blue in the cold.

At the age of 12 years she had received buckshot wounds in the popliteal space of both legs. For many years she had suffered from peptic ulcer, varicose veins and constipation. For four years she had known that her blood pressure was high. Her treatment had consisted of diet for the peptic ulcer, phenobarbital for nervousness and high blood pressure, epsom salt for constipation, and massage and baking of both upper and lower extremities.

Examination on admission to the clinic showed extremities that were normal in color but cold even though the day was warm. There were a few tender spots along the muscles of the leg and about the ankles. Pulsations of the dorsal pedal arteries were palpable but faint. The oscillometric readings (table 14) were diminished. The nails showed trophic changes. The skin was dry. The blood chemistry and urine were normal. The blood pressure was 220 systolic, 106 diastolic. The blood viscosity was 6.5. X-ray films of the extremities showed multiple small foreign bodies of metallic density in the region of both knee joints. The report stated that they were probably gun shot. The vessels of both legs were calcified. Treatment in the clinic consisted of the dietary regimen, exercises and soaks, and sodium citrate by mouth. There was no improvement after three weeks of this schedule. Sodium citrate was then given by vein. After ten injections there was complete

TABLE 16.—Oscillometric Readings (Case 5)

	Foot		Ankle		Calf		Thigh	
	Right	Left	Right	Left	Right	Left	Right	Left
On admission	1/2	Tr.	1	0	1 1/2	1/4	1 1/2	1/4
On dismissal	1/2		1 1/2	1/2	2 1/2	1/2	2 1/2	1

relief of pain in the legs, her hands and feet were less cold, and the numbness had disappeared. She had no digestive discomfort, and the bowels were regular with lactose. The blood pressure was 150 systolic, 110 diastolic. The blood viscosity was 5.2. She has required no further injections and is doing well on the dietary regimen and Buerger's exercises.

CASE 4.—B. R., a Russian Jewish merchant, aged 62, had severe pain in the left foot and great toe of one week's duration. For one and one-half years he had intermittent claudication and pain in the left foot on walking one block. He had worried considerably about his health and financial condition during this time; otherwise his past history was negative. Examination showed cyanosis of the left great toe, slow capillary return, trophic changes in the nails, a positive Buerger's sign, reduced oscillometric readings (table 15) in both lower extremities, and dermatophytosis of the feet. The blood pressure was 170 systolic, 100 diastolic, and the blood sugar was 0.107 Gm. per hundred cubic centimeters. The patient improved slowly but steadily on oral treatment, the severe pain in the foot disappeared and the color improved. After three months he could walk three blocks instead of one block without pain. After two additional

months there was no further improvement. He was then given sodium citrate intravenously. He had forty-six injections during the next two months and improved so that he could walk indefinite distances at a slow pace. Several months after injections were discontinued he again had pain on walking a few blocks. He was again given ten injections of sodium citrate, again felt better and could walk comfortably; he was not seen for two months, when he stated that on some days he could walk well while on others he could not walk more than a block without pain. He was then given ten injections of calcium gluconate (10 cc. of 20 per cent solution) and again improved.

In this case the injections of citrate were followed by increased circulation in the extremities as evidenced by improvement in symptoms and oscillometric readings, but the vasospastic element, apparently considerably influenced by worry on the part of the patient, was not controlled by the dietary regimen alone. About a year after treatment was started, during a period in which he did not receive any injections, his symptoms and oscillometric readings again became worse and were again improved, this time after injections of calcium by vein.

CASE 5.—This is a case of thrombo-angiitis obliterans in a woman, a heavy smoker. L. S., aged 36, had an ulcer on the dorsum of the left foot with severe pain, of four months' duration. Three years before admission she had had "neuritic" pains in both arms for which the etiology was not determined. Six months before admission similar pains developed in the left leg and foot and two months later an ulcer appeared at the base of the left great toe. Treatment previous to admission

TABLE 17.—Oscillometric Readings (Case 6)

	Foot		Ankle		Calf		
	Right	Left	Right	Left	Right	Left	
4/17/33	0	0	1/2	1/2	4	2	
5/21/33	Tr.	Tr.	1/2	1/2	—	—	
5/12/34	1/2	1/2	1/2	1	—	—	After last course of treatment
1/13/36	Tr.	Tr.	Tr.	1/4	—	—	After worry
6/24/36	Tr.	Tr.	1/4	1/4	—	—	

consisted of rest in bed for about three months, baking, massage and finally local injection around the ulcer (substance unknown) and sedatives for pain. Examination on admission showed an ulcerated area about 4 cm. in diameter on the dorsum of the left foot at the base of the great toe. The tendons and deep structures were exposed, and there was no evidence of granulation. The surrounding skin was a dark bluish red and slightly edematous. The entire foot was cyanotic and cold. The dorsal pedal pulse was not palpable. The right foot was normal in appearance. Both hands showed patchy, erythematous mottling on the thenar and hypothenar eminences. The nails were thickened and there was some atrophy of the finger tips. The radial pulse was not felt on the left but was palpable on the right. Other observations were negative except for moderate obesity. The blood chemistry and basal metabolism were normal. X-ray examination failed to show any local bony changes but did show spotty decalcification throughout the entire foot. Oscillometric readings (table 16) were decreased throughout. Treatment consisted of rest in bed and daily injections of 250 cc. of sodium citrate in addition to the dietary regimen, sedatives and warm soaks. She improved slowly but steadily and was discharged on the ninety-first day after admission with the ulcer markedly reduced in size and nearly healed. At home she did her housework and stated that she did not resume smoking. For two months she was free of symptoms, but the ulcer did not heal entirely. She began to have pain again and the ulcer increased in size. She was readmitted to the hospital. The ulcer measured 1 by 2 cm., and the base was covered with granulation tissue over which was a thin layer of purulent exudate. Treatment was resumed and, when the ulcer was clean, skin grafts were applied but sloughed off, and amputation of the great toe became necessary. The wound was left open and moist dressings were applied. The wound healed slowly and the patient was discharged from the hospital

on the eighty-seventh day. In fourteen months she has had no further trouble; both upper and lower extremities are normal in color, the left radial pulse is palpable, and she is free from pain.

CASE 6.—A. A., a man, aged 35, an American, a bartender, strong and healthy, a heavy smoker, had been on a diet deficient in calcium. His past history was otherwise negative until nine months before admission when he bruised the second and third toes of the right foot. Two months after this injury the two toes were amputated. The stumps did not heal. He was then admitted to the New York Hospital, where with rest in bed, heat and soaks, healing proceeded very slowly. Healing was markedly speeded up when sodium citrate was given by vein. Examination on admission showed ulceration of the bases of all the toes of the right foot. The remaining three toes were cyanotic and cold. No pulsation of the dorsal artery was felt on the right, while there was a faint pulsation on the left. Oscillometric readings (table 17) were reduced in both extremities. The blood pressure was 120 systolic, 90 diastolic. The blood calcium was 10.8 mg. per hundred cubic centimeters, the blood phosphorus 2.2 mg. and the blood viscosity 7.5. With daily injections of sodium citrate, healing took place in one month. The blood viscosity was reduced to 5.5 and the oscillometric readings were improved. After leaving the hospital he went back to his previous way of living; he resumed smoking and did not follow the dietary schedule. Six months later he returned to the hospital with ulceration of the left great toe. The blood viscosity was again high, 7.2, and the oscillometric readings were again reduced. He was treated in the clinic with another course of injections of sodium citrate. At first injections were given daily, then three times a week until healing occurred. He has since adhered to his diet, does not smoke and was free of symptoms until he lost his job and became much worried. He again had pain on walking a short distance, whereas after his last course of treatment he had walked several miles without pain. Subsequently, although still without work, he had ceased to fret so much about his ill luck, is free from symptoms, and the oscillometric readings, though not so good as before, are improved over those taken during the period of his greatest anxiety.

COMMENT

Since 1913, when Koga³ in Japan used hypodermoclyses of Ringer's solution to reduce the viscosity of the blood, which he and Mayesima⁴ had found to be high in thrombo-angiitis obliterans, several different medical methods have been used in the treatment of this disease. These methods have aimed to correct abnormal changes in the blood, to increase the blood volume, or to produce peripheral dilatation in other ways. A review of the various treatments is given in a Mayo Clinic monograph⁵ on thrombo-angiitis obliterans.

In a study of thirty-two cases of thrombo-angiitis obliterans in the First Medical Division of the old New York Hospital, we found a high blood calcium in twenty-nine and a low blood phosphorus (inorganic) in twenty-five. The calcium ranged from 11.6 to 14 mg. per hundred cubic centimeters, the average being 12.2 mg. The phosphorus ranged from 2.2 to 3 mg. per hundred cubic centimeters, the average being 2.5 mg. Silbert,⁶ in a series of forty cases likewise found a hypercalcemia, the average in his cases being 12.4 mg. A retention of calcium also was found in five of our cases in which calcium balance studies were carried out. We were interested to see whether decrease of the high calcium content of the blood and increase

in the excretion of calcium would favorably influence the course of the disease. To increase the excretion of calcium we used sodium acid phosphate and sodium citrate. The latter also reduces the viscosity of the blood. We also prescribed a diet low in calcium. On this regimen the calcium content of the blood and calcium excretion became normal, and the viscosity of the blood, high in those cases in which it was determined, was reduced. Symptoms were improved in most of the cases.

In our present group of fifty-four cases of thrombo-angiitis obliterans, while a low blood phosphorus was found in about 78 per cent—as in the former group—a high blood calcium was found in only three cases. No calcium balance studies have been done in the second group. More investigation is necessary before the nature of these observations can be properly evaluated.

In the second group of cases we substituted a high calcium intake for the low one, not only because the blood calcium was not high but because, no matter what the form of disturbance in calcium metabolism might be, it is doubtful whether a calcium intake less than that required for positive calcium balance is ever indicated as a form of therapy for any considerable length of time. The effect of sodium citrate is the same whether the intake of calcium is high or low.

With the use of the high calcium regimen and sodium citrate not only have the clinical results in thrombo-angiitis obliterans been more satisfactory and long lasting than with the low calcium intake but the results in cases of arteriosclerosis have been even better. Reports in the literature show that other medical methods, such as injection of foreign protein and hypertonic sodium chloride solution, have also been successful in the treatment of thrombo-angiitis obliterans, but we have failed to find any reports of similarly good results in the treatment of a series of cases of arteriosclerosis.

The use of sodium citrate is not attended by any ill effects, such as may follow foreign protein therapy and hypertonic sodium chloride injections. Because it increases the excretion of calcium, its prolonged use may result in a deficiency in calcium unless the intake of calcium is adequate. Accordingly, in the long run, the effects of sodium citrate are better when the intake of calcium is high.

A high calcium intake, besides preventing calcium depletion of the body through sodium citrate, exerts an antivasospastic influence and, as Sherman⁷ has observed, also produces a beneficial effect on general health. It apparently does not affect the viscosity of the blood adversely, nor does it, as some fear, lead to increased arteriosclerosis.

SUMMARY

1. A rationale of treatment of arteriosclerosis and thrombo-angiitis obliterans is as follows: (1) no tobacco, (2) diet high in calcium and vitamins, (3) the use of sodium citrate in the severe cases, and (4) proper care of the extremities.

2. Of ninety-nine cases of arteriosclerosis, 83.8 per cent showed improvement; of fifty-four cases of thrombo-angiitis obliterans, 79.6 per cent showed improvement.

3. The results show that arteriosclerosis is as amenable to this type of treatment as is thrombo-angiitis obliterans.

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DINITROPHENOL AND DESICCATED THYROID IN THE TREATMENT OF OBESITY

A COMPREHENSIVE CLINICAL AND LABORATORY STUDY

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Within the last three years, dinitrophenol burst upon the medical world with meteoric suddenness. The groundwork was laid as early as 1885,¹ when the effects, on the dog, of dinitro-alpha-naphthol (a compound closely related to dinitrophenol) were studied. Interest in the drug lapsed until the World War, when poisoning of those working with it in munition plants was frequent.² Since 1933,³ when its possibilities, especially in the treatment of obesity, were first spread before physicians, the drug has enjoyed a phenomenal growth in usage. Recently, Tainter⁴ has given as an estimate that 100,000 patients are taking, or have taken, dinitrophenol.

A detailed study of the voluminous literature on dinitrophenol reveals surprising gaps in our knowledge of the drug. Although our knowledge of the pharmacology and clinical actions of the drug rests on a secure footing, studies of its clinical pathology are woefully inadequate. Accordingly, this paper presents clinical and laboratory studies on a group of 159 ambulatory obese patients who were selected at random and treated with dinitrophenol.

PHARMACOLOGIC ACTIONS

The basic action is an acceleration of tissue metabolism. The pharmacologic actions are similar in animals and in men.⁵ The earliest detectable effect of dinitrophenol administration is an increase in the basal metabolic rate. A single oral dose of from 3 to 5 mg. per kilogram of body weight produces an increase in the basal metabolic rate of from 20 to 30 per cent within the first hour. This level is maintained for twenty-four hours and then falls gradually to normal on the third day.⁶ With daily administration there is a rapid rise of the basal metabolic rate on the first day, a slight additional rise on subsequent days, and the maximum on the fourth day. This is in marked contrast with the slow incidence and subsidence of thyroid action. After the dinitrophenol is discontinued, the basal metabolic rate falls to normal within three to fourteen days.⁷ The response to a given dose may vary considerably from day to day.⁸ If the basal metabolic rate rises less than 30% or 40 per cent¹⁰ there is little reaction except peripheral vasodilatation, and a slight increase in respiratory minute-volume. A greater elevation produces uncomfortable heat and sweating. Larger doses may

cause a metabolic rise ten times the normal,¹¹ a rise in metabolism so rapid and extreme that heat production outstrips heat dissipation and the subject may die of hyperthermia.

The fever is a consequence of, rather than the cause of, the metabolic rise.¹² The hyperthermia is not of central origin.¹³ It is due to direct stimulation of cellular respiration.¹⁴ The hyperthermia and rise of metabolism are not related to the glutathione content of the tissues, which is considerably reduced.¹⁵ The hypothesis is held quite generally that dinitrophenol, like glutathione, is a respiratory ferment.¹⁶ Metabolic increases have been obtained in various preparations of isolated tissues perfused with suitable concentrations of dinitrophenol.¹⁷ If increasing doses are given, a fairly constant relationship between the size of the dose and the degree of fever is noted. If the drug is administered repeatedly, at intervals of three or more days, no development of tolerance is noted.¹⁸ On the other hand, tolerance is induced toward fatal doses if administered at twenty-four hour intervals.¹⁹ The rate of renal excretion plays an important rôle in determining the total response to dinitrophenol.²⁰

The respiratory quotient shows a considerable fall during dinitrophenol medication,²¹ in sharp contrast with thyroid, which produces no significant variation. The extra energy of metabolism is derived mainly from fat²² and practically not at all from protein or carbohydrate. Consequently, dinitrophenol in therapeutic dosage produces no breakdown of significant amounts of body protein, even with patients on an inadequate protein intake.²³ This is in marked contrast with the very considerable increase in nitrogen excretion observed in patients undergoing treatment with thyroid.⁹ The fat used is completely and satisfactorily broken down, as no ketone bodies are found in the urine.²⁴ There is no hyperlipemia or consistent change in the fixed and fatty acids of the blood.²⁵

Dinitrophenol effects a marked acceleration of tissue metabolism, resulting in a marked increase of oxygen consumption and hyperventilation. The serum pH remains within normal limits, the bicarbonate concen-

The laboratory studies were performed chiefly in patients drawn from Dr. Mitchell Bernstein's medical outpatient department at the Jewish Hospital.

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9. Dunlop, D. M.: *Brit. M. J.* **1**: 524 (March 24) 1934.
10. Dodds, E. C., and Robertson, J. D.: *Lancet* **2**: 1137 (Nov. 18) 1935.

11. Hall, L. F.; Field, J.; Sahyun, M.; Cutting, W. C., and Tainter, M. L.: *Am. J. Physiol.* **106**: 432 (Nov.) 1933.
12. Tainter, M. L., and Cutting, W. C.: *J. Pharmacol. & Exper. Therap.* **48**: 410 (Aug.) 1933. Hall, Field, Sahyun, Cutting and Tainter.¹¹ Magne, Mayer and Plantefol.²⁷
13. Heymans, C., and Bouckaert, J. J.: *Arch. Internat. de pharmacodyn. et de therap.* **35**: 63, 1929. Van Uytvanck, P.: *Compt. rend. Soc. de biol.* **110**: 992 (June 25) 1932. Bocq, Z.; Brouha, L., and Heymans, C.: *ibid.* **117**: 255 (July 14) 1934. Magne, Mayer and Plantefol.²⁷ Van Uytvanck.²⁰ von Euler.¹⁶ Moraes.¹¹ Cutting, Mehrtens and Tainter.³ Tainter and Cutting.¹² Tainter and Cutting.¹³ Ehrenfest and Ronzoni.¹⁴ Courdouan.⁶
14. Moraes, A.: *Compt. rend. Soc. de biol.* **109**: 559 (Jan. 30) 1932. Heymans, C.: *J. Pharmacol. & Exper. Therap.* **51**: 144 (June) 1934. Ehrenfest, Ellen, and Ronzoni, Ethel: *Proc. Soc. Exper. Biol. & Med.* **31**: 318 (Dec.) 1933.
15. Moraes, H., and Casier, H.: *Arch. internat. de pharmacodyn. et de therap.* **45**: 113, 1933.
16. von Euler, U. S.: *Arch. internat. de pharmacodyn. et de therap.* **43**: 67, 1932.
17. von Euler, U. S.: *Arch. internat. de pharmacodyn.* **44**: 464, 1933.
18. Dodds, E. C., and Greville, G. D.: *Nature* **132**: 966, 1933. Muntwyler, Edward: *Proc. Soc. Exper. Biol. & Med.* **31**: 621 (Feb.) 1934. Magne, Mayer and Plantefol.²⁷ von Euler.¹⁶ Moraes and Casier.¹⁵ Ehrenfest and Ronzoni.¹⁴
19. Tainter, M. L., and Cutting, W. C.: *J. Pharmacol. & Exper. Therap.* **49**: 187 (Oct.) 1933.
20. Perkins, R. G.: *Pub. Health Rep.* **54**: 2335 (Oct. 24) 1919.
21. Magne, Mayer and Plantefol.²⁷ Terada and Tainter.²⁹
22. Terada, B., and Tainter, M. L.: *J. Pharmacol. & Exper. Therap.* **54**: 454 (Aug.) 1935.
23. Dunlop.⁹ Cutting, Mehrtens and Tainter.³
24. Magne, Mayer and Plantefol.²⁷ Markowitz.⁴² Cutting, Mehrtens and Tainter.³
25. Pugsley, L. I.: *Biochem. J.* **29**: 2247 (Oct.) 1935. Fürth, O., and Rapoport, S.: *Biochem. Ztschr.* **272**: 81, 1934. Cutting, W. C., and Tainter, M. L.: *Metabolic Actions of Dinitrophenol*, J. A. M. A. **101**: 2099 (Dec. 30) 1933. Markowitz.⁴² Robbins.²¹ Tainter, Cutting and Hines.⁷
26. Hall, Field, Sahyun, Cutting and Tainter.¹¹ Dunlop.⁹
27. Cahn, T., and Houget, J.: *Compt. rend. Soc. de biol.* **113**: 587 (June 10) 1933. Magne, Mayer and Plantefol.²⁷

tration decreases, and the chlorides increase²⁶ or remain unchanged.²⁷ Reports tend to show a marked creatinuria and increased excretion of creatine, as well as an increased fecal excretion of calcium.²⁸ In this respect dinitrophenol is similar in its effects to desiccated thyroid or thyroxine. There are no significant changes in blood calcium, blood phosphorus or nitrogen balance.²⁹

In strong contrast with thyroxine, dinitrophenol has no effect on hypothyroidism, even when the patient responds with an increase in metabolism. The symptoms of myxedema are unalleviated.³⁰ Dinitrophenol lacks the power of thyroxine to accelerate developmental processes.³¹ Apparently the effect of thyroxine on the metamorphosis of tadpoles is not a direct result of the increased metabolism but presumably an independent action.

In the body, after reaching the blood, or even before, dinitrophenol undergoes certain chemical changes into reduction derivatives, which are of varying complexity.³² Of these the most important is amino-2 nitro-4 phenol, which is found in great abundance in the urine of seriously intoxicated patients and consequently is used as the basis of the Derrien test.³³ The infallibility of this test, which is cited repeatedly in the literature to prove the presence of dinitrophenol poisoning, has been exploded by Bolliger.³³

ADMINISTRATION OF DINITROPHENOL AND METHODS OF STUDY

The series studied comprised a total of 181 unselected ambulatory obese patients, of whom 159 were given dinitrophenol exclusively or in combination with desiccated thyroid. The effects of diet, combined with desiccated thyroid, were studied in the other twenty-two patients. The patients included three with chronic arthritis, five with syphilis (of whom one had tabes dorsalis), twelve with hypertension (of whom two had advanced chronic nephritis) and four with moderately advanced rheumatic heart disease (of whom two had mitral stenosis). The method employed consisted of the administration of one capsule (100 mg. of sodium dinitrophenol) the first day, two capsules the second day and three capsules daily thereafter (preferably after meals). At the end of one week the patient was reexamined. Thereafter the dose was regulated as was found necessary. Patients were warned to discontinue the drug if marked itching or a skin rash appeared. No attempt at rigid dietary control was made. The patients were merely given general dietary instructions.

Basal metabolism studies were performed in sixty-six cases. Liver function was tested by the determination of the icteric index after the serum was decolorized with dilute hydrochloric acid, by the van den Bergh reaction on the serum, and by the bromsulfalein test (intravenous use of 2 mg. of the dye per kilogram of body weight). Renal function was tested by repeated urine examinations and by the use of the intravenous phenol-

sulfonphthalein test. Effects on the circulatory system were studied by examination of the pulse, blood pressure and electrocardiographic tracings. Carbohydrate metabolism was studied by means of the fasting blood sugar and the dextrose tolerance test (175 Gm. of dextrose orally per kilogram of body weight).

CLINICAL ACTIONS

The chief clinical effects of therapeutically effective doses of dinitrophenol are those of increased heat production. The patient becomes conscious of a sensation of warmth, together with an increase of perspiration. These sensations may be so extreme as to make the patient acutely uncomfortable. A few do not perspire at all. In others, drenching sweats occur, usually at night. In the majority the sweating is generalized. In a considerable minority, the sweating is localized to the physiologic area from the neck upward. Only two patients complained of some dyspnea on exertion, "due presumably to an increased need for oxygen."³⁴ The majority felt a tremendous improvement in their sense of well being. The temperature, pulse rate and respiration were carefully watched. It was found that the temperature is an excellent guide of impending toxicity. The rule was followed invariably that, when the temperature rose as high as 99.2 F., the drug was either discontinued or the dosage sharply reduced. In this way, many impending reactions were avoided. The temperature usually remained well within normal limits. It was not unusual for the respirations to be increased by as much as ten per minute. The respiratory rate is not a sensitive guide to toxicity. The pulse, as described elsewhere, showed no significant alterations in most patients.

Tolerance to the drug is established rapidly, so that to produce a consistent loss of weight the dosage must gradually be raised. On the other hand, the acquired tolerance is rapidly lost if the drug is discontinued for as short a period as two weeks. The dinitrophenol may then be resumed at a lower dosage level with its original effect on the patient. It is remarkable how sensitive many patients are to a slight increase in the dosage.

It is not unusual for a patient to cease losing weight suddenly after weeks of steady, satisfactory weight loss. Apparently two factors are chiefly concerned. Concrete examples will suffice:

Factor 1 is rapidly acquired tolerance to the drug. Thus, one patient, on a daily dose of 5 grains (0.32 Gm.), resulting in a metabolic rate of +26 per cent, lost weight at an average rate of 3 pounds (1.4 Kg.) a week for seven weeks. Then, for six weeks, she lost no weight even though the dose was raised to 6 grains (0.4 Gm.) daily. A basal metabolic rate determination at this time was found to be +6 per cent.

Factor 2 is by far the more important one. Apparently dinitrophenol has a tendency to promote storage of water in the body. For example, a patient on a daily average dosage of 4½ grains (0.3 Gm.), with a basal metabolic rate of +46 per cent, lost an average of 2 pounds (0.9 Kg.) a week for eight weeks. Then she suddenly stopped losing weight. The dosage was increased to 6 grains (0.4 Gm.) daily for four weeks, with no resultant weight loss. A basal metabolic rate determination at this time was +62 per cent. Presumably, the effect of the heightened metabolism was masked by the accumulation of water in the tissues. In such cases, merely discontinuing the drug temporar-

26. Muntwyler, Edward; Myers, D. C.; Danielson, W. H., and Zorn, Carla: *Am. J. Physiol.* 113: 186 (Sept.) 1935.

27. Magne, H.; Mayer, A., and Plantefol, L.: *Ann. de physiol. et de phys. biol.* 8: 1, 1932.

28. Lieben, F., and Asriel, E.: *Biochem. Ztschr.* 277: 159, 1935. Tainter, M. L.; Cutting, W. C., and Hines, E.: *J. Pharmacol. & Exper. Therap.* 55: 326 (Nov.) 1935. Pugsley, MacBryde and Taussig.

29. Van Uytvanck, P.: *Arch. internat. de pharmacodyn. et de therap.* 41: 160, 1931. Robbins, C. L.: *J. Nutrition* 10: 187 (Aug.) 1935.

30. Dodds, E. C., and Robertson, J. D.: *Lancet* 2: 1197 (Nov. 25) 1935.

31. Cutting, W. C., and Tainter, M. L.: *Proc. Soc. Exper. Biol. & Med.* 31: 97 (Oct.) 1933.

32. Guerbert, F. C.: *Recherche toxicale du dinitrophenol et de acide picrique*, Paris, 1918, quoted by Hunt.

33. Guerbert, M.: *Ann. de physiol. et de phys. biol.* 8: 92, 1932. Anderson, H. H.; Reed, A. C., and Emerson, G. A.: *Toxicity of Alpha-Dinitrophenol*, J. A. M. A. 101: 1053 (Sept. 30) 1933. Bolliger, A.: *M. J. Australia* 1: 367 (March 17) 1934.

34. Tainter, M. L.; Stockton, A. B., and Cutting, W. C.: *Dinitrophenol in the Treatment of Obesity: Final Report*, J. A. M. A. 105: 332 (Aug. 3) 1935.

ily often results in a rapid loss of weight. The drug can then be resumed with its former effectiveness.

In a few patients the water-logging of the tissues becomes so pronounced that frank edema, most evident at the ankles, may result. Careful study of such patients discloses no etiology other than the direct action of the dinitrophenol. Occasionally spectacular results may be obtained by the intravenous use of salyrgan.³⁵ In one

A very interesting phenomenon is observed with the change of seasons. As summer passes into fall, it is found that the patient suddenly ceases to lose weight, although the weight loss before may have been very satisfactory and steady. That the mechanism involved is not the development of tolerance is attested by the fact that a considerable group of patients exhibit this phenomenon simultaneously. In the case of dinitrophenol it may be partly accounted for, but only partly, by the diminution of sweating that accompanies the colder weather. In the hot summer months, small doses of dinitrophenol will produce a weight loss that will be matched in the cold winter months only by considerably larger doses. Such loss of the calorigenic power of certain drugs at low temperatures has been known for some time.³⁷ The proved capacity of low temperatures to abolish and even reverse the calorigenic action of certain substances (endogenous and exogenous in type) has no adequate explanation.

LIVER FUNCTION

It is easily conceivable why dinitrophenol should be suspected of being toxic to the liver. It is closely related chemically to trinitrophenol (picric acid) and other compounds that are liver poisons. Animal experiments in general show no toxic effects on the liver.³⁸ Post-mortem studies of these animals showed no significant damage to the liver following repeated medication with nonfatal, fever-producing doses and with doses ultimately becoming fatal.³⁹ In human beings the reports are rather meager, but they bear out the view that dinitrophenol is not a hepatotoxin, except in isolated instances.⁴⁰ Two cases of poisoning with fatal termination showed moderate congestion, a slight detachment of hepatic cells from one another, and slight fatty infiltration in the periphery of the lobules.⁴¹

Dinitrophenol often discolors the sclerae and even the skin, thus producing the clinical appearance of jaundice.⁴² This occurred, in a marked degree, in seven cases of the present series. The discoloration varies considerably from time to time and usually disappears gradually, even though the medication is continued. To avoid error in the determination of the icteric index, the blood plasma must be acidified.

Tainter, Cutting and Stockton⁴³ reported a series of cases in which icteric index and van den Bergh studies were done (table 1). Their results show no liver damage. In the present series, fifteen patients were carefully studied with the icteric index, van den Bergh and bromsulfalein tests. A study of table 1 discloses no liver damage even after months of intensive medication. If liver damage was present, one would expect the blood

TABLE 1.—Effects of Dinitrophenol on Liver Function

Icteric Index						
	Number of Patients	Number of Determinations	Average Value, Units	Duration of Medication, Weeks	Sodium Dinitrophenol Average Daily Dose, Gm.	Sodium Dinitrophenol Average Total Amount, Gm.
Tainter, Stockton and Cutting.....	14	14	7.6 (4.2-10.0)	0 (Controls)	0	0
Tainter, Stockton and Cutting.....	17	22	8.2 (4.8-16.3)	4-21	0.3	—
Author.....	4	4	12.2 (9.0-18.0)	0 (Controls)	0	0
Author.....	14	30	10.4 (2.5-20.0)	15.5 (3-81)	0.3	34.2 (3.0-245.6)
Van den Bergh Test						
	Number of Patients	Number of Determinations	Direct Reaction	Average Value, Mg.	Duration of Medication, Weeks	Sodium Dinitrophenol Average Daily Dose, Gm.
Tainter, Stockton and Cutting.....	45	..	..	0.29* (0.13-0.79)	19 (2-50)	0.3 (0.1-0.6)
Author.....	3	3	Neg.	0.25	0 (Controls)	0
Author.....	15	31	30 Neg.† 1 delayed weakly positive	0.25 (<0.25-0.40)	14.5 (2-81)	0.3 (0.1-0.65)
Bromsulfalein Test						
	Number of Patients	Number of Determinations	Dye Retention at 30 min., per Cent	Duration of Medication, Weeks	Sodium Dinitrophenol Average Daily Dose, Gm.	Sodium Dinitrophenol Average Total Amount, Gm.
Author.....	15	28	2 (0-<5)	14.5 (2-81)	0.3 (0.1-0.65)	34.9 (3.0-245.6)

* Two patients showed values over 0.5 mg. but there was no demonstrable clinical evidence of liver damage.
† One patient, at the end of four weeks' medication, had an icteric index of 20, direct delayed weakly positive van den Bergh reaction and indirect van den Bergh reaction of 0.25 mg. At eighteen weeks and at twenty weeks, all tests gave normal values.

patient, for example, two injections resulted in a loss of 12½ pounds (5.6 Kg.) in one week.

Rapid, large weight changes are very common. They are due chiefly to alterations in the water content of the body. For this reason many patients lose 5 pounds (2.3 Kg.) or more during the first week. The loss of weight often assumes a steplike pattern. "A gain of weight may occur while the body tissue is being consumed, solely because water is being added to the body, and weight may diminish in the face of overfeeding, because depletion of water is also taking place."³⁶

35. Mazer, Charles, and Goldstein, Leopold: Clinical Endocrinology of the Female, Philadelphia, W. B. Saunders Company, 1933, p. 451.
36. Newburgh, L. H.: The Cause of Obesity, J. A. M. A. 97: 1659 (Dec. 5) 1931.

37. Tainter, M. L.: J. Pharmacol. & Exper. Therap. 51: 45 (May) 1934. Riddle, Oscar, and Smith, Guinevere, C.: J. Pharmacol. & Exper. Therap. 55: 173 (Oct.) 1935.
38. Koch, R. A.; Lee, R. C. H., and Tainter, M. L.: California & West. Med. 43: 337 (Nov.) 1935. Hall, Field, Sahyun, Cutting and Tainter.¹¹ Tainter, Cutting, Wood and Proeschner.⁴⁴ Tainter and Cutting.¹⁴
39. Jonnard, R.: Ann. de méd. lég. 15: 181 (Jan.) 1935. Hall, Field, Sahyun, Cutting and Tainter.¹¹ Magne, Mayer and Plantefol.²² Tainter, Cutting, Wood and Proeschner.⁴⁴ Koch, Lee and Tainter.³³ Tainter and Cutting.¹⁵
40. Warthin, A. S.: Bull. 7, Internat. A. M. Museums, May 1918, p. 123. Sidel, Nathan: Dinitrophenol Poisoning Causing Jaundice, J. A. M. A. 103: 254 (July 28) 1934. Davidson, Elizabeth N., and Shapiro, Matthew: Neutropenia Following Dinitrophenol, with Improvement After Pentnucleotide and Leukocyte Cream, ibid. 102: 480 (Aug. 18) 1934. Cogan, D. G., and Cogan, Frances C.: Dinitrophenol Cataract, ibid. 105: 793 (Sept. 7) 1935. Dunlop,⁹ Rabinowitch and Fowler.¹ Tainter, Stockton and Cutting.⁴³ Jackson and Duvall.²⁴ MacBryde and Tausig.¹⁹ Perkins.¹²
41. Poole, F. E., and Haining, R. B.: Sudden Death from Dinitrophenol Poisoning, J. A. M. A. 102: 1141 (April 7) 1934. Tainter, M. L., and Wood, D. A.: A Case of Fatal Dinitrophenol Poisoning, ibid. 102: 1147 (April 7) 1934.
42. Haft, H. H.: Toxicity of Dinitrophenol, J. A. M. A. 101: 1171 (Oct. 7) 1933. Masserman and Goldsmith.²⁹
43. Tainter, M. L.; Cutting, W. C., and Stockton, A. B.: Am. J. Pub. Health 24: 1015 (Oct.) 1934.

bilirubin to increase in proportion to the amount of drug ingested. No such relationship is observed. One patient developed, in the fourth week of medication, an icteric index of 20 and a weakly positive, direct, delayed van den Bergh reaction. The bromsulfalein test was negative. Complete studies at eighteen and at twenty weeks in this case revealed no liver damage. Another patient took the drug almost continuously for eighty-one weeks (consuming a total of 245 Gm.) and showed no liver damage.

The question of delayed liver damage has been inadequately studied. The only report in the literature⁴³ is one that deals with six patients who showed an average bilirubin count of 0.24 units (0.15-0.40) after the drug had been discontinued for thirty-six weeks.

In conclusion, it seems quite justifiable to state that dinitrophenol, in therapeutic dosage, is not a hepatotoxin, except in the extremely rare case in which there may exist an idiosyncrasy that may mediate damage to the liver.

KIDNEY FUNCTION

Experimental studies on animals show no toxic effects on the kidney.⁴⁴ Postmortem examination of the kidneys in these and in other animals dead of dinitrophenol poisoning⁴⁵ revealed no significant pathologic changes grossly or microscopically, except mild degrees of cytolysis. Clinical reports on human beings are scattered and in the main bear out the view that dinitrophenol is nontoxic to the kidneys.⁴⁶

Thirty-three intravenous phenolsulfonphthalein tests were performed on fifteen patients. It must be remembered that this test, which is the most widely used of the renal function tests in this country, is subject to wide clinical aberrations.⁴⁷ Half the normal renal tissue can be removed without influence on results of the test, so that normal excretion of the dye does not necessarily indicate unimpaired renal function. With these limitations in mind, examination of table 2 reveals no significant impairment of renal efficiency.

Repeated urine examinations were made of these fifteen as well as of five other patients. In nine, no urinary changes occurred. In five a previous albuminuria disappeared or became greatly decreased in amount; in two of the five, casts disappeared. In six patients, who had negative urinalyses at the beginning, a slight albuminuria developed: in four, as medication was continued, the albuminuria disappeared; in the other two it persisted. In short, "It is unlikely that dinitrophenol in ordinary clinical dosage will injure the kidneys."⁴⁸

CARDIOVASCULAR SYSTEM

Dinitrophenol is remarkable for its lack of significant effects on the cardiovascular system even when the basal metabolic rate is raised to high levels. There is no significant change in the pulse rate.⁴⁹ In this respect

(the absence of relationship between the pulse rate and the basal metabolic rate) dinitrophenol differs from other known accelerators of metabolism. Of a group of eighteen psychotic patients, five showed toxic effects characterized by tachycardia, a fall of blood pressure, and stupor.⁵⁰ No similar reports have appeared in the literature on psychotic⁵¹ or nonpsychotic patients.⁵² In the present series only one (who became toxic) developed tachycardia. Otherwise the patients showed no significant change in pulse rate.

Many investigators in small series of cases, found no change in blood pressure.⁵² Others found a marked difference in the response of hypertensive and nonhypertensive patients. "In patients with normal blood

TABLE 2.—Effects of Dinitrophenol on Kidney Function

Case	Duration of Medication, Weeks	Sodium Dinitrophenol		Phenolsulfonphthalein Intravenously, per Cent Excretion	
		Average Daily Dose, Mg. per Kg.	Average Total Amount, Gm.	1st Hr.	2d Hr.
1	0	0	0	70	10
	3	2.4	4.2	55	13
2	0	0	0	35	20
	5	2.2	7.0	55	8
3	0	0	0	70	15
	4	4.2	9.7	35	20
4	17	3.8	33.5	..	30
5*	0	0	0	35	10
	5	4.8	13.3	30	13
6	0	0	0	25	5
	8	5.0	13.3	30	28
	12	3.2	20.1	..	23
	13	3.2	21.2	85	5
7	0	0	0	70	17
	9	5.3	28.5	60	15
	13	4.5	40.4	65	..
	14	4.5	45.2	45	17
8	13	3.9	27.2	55	15
	16	3.9	33.3	60	10
9	14	4.2	35.8	55	7
10*	0	0	0	75	7
	14	4.2	8.3	60	10
11	0	0	0	75	7
	4	2.4	5.4	55	17
12	15	5.4	18.0	80	7
	19	4.2	22.8	50	20
13	0	0	0	60	15
	8	3.1	13.7	60	15
	11	3.1	18.4	40	15
14	0	0	0	60	20
	5	4.7	12.6	60	15
15	60	5.0	158.6	45	15
	81	5.8	245.6	40	20

* Patients with chronic nephritis and hypertension.

pressure no important change in either systolic or diastolic pressure or in pulse rate has been demonstrated."⁵³ Hypertensive patients showed a definite fall of both systolic and diastolic pressures; hypotensive patients showed little or no further decrease of blood pressure.⁵⁴ Tainter, Stockton and Cutting⁵¹ concluded that such changes in blood pressure as occur are probably due to loss of body weight.

In the present series (181 patients) were twelve hypertensive patients (ten female and two male), of whom ten were placed on dinitrophenol medication. Seven were so-called essential hypertensives, two had chronic nephritis with hypertension dating from neph-

44. Tainter, M. L.; Cutting, W. C.; Wood, D. A., and Proeschner, Frederick: Dinitrophenol, Arch. Path. 18: 881 (Dec.) 1934. Schulte and Tainter.⁴⁵

45. Magne, Mayer and Plantefol.⁴⁶ Vermeylen, G., and Heernu, J.: J. belge de neurol. et de psychiat. 35: 249 (May) 1935. Lattimore, J. L.: J. Kansas M. Soc. 35: 388 (Oct.) 1934. Pribourg-Blanc, A.: Soc. de méd. légale de France, Dec. 10, 1934, quoted by Salmon.⁴⁷ Beinhauer, L. G.: West Virginia M. J. 30: 466 (Oct.) 1934. Warthin.⁴⁸ Rabinowitch and Fowler.⁴⁹ Tainter, Stockton and Cutting.⁵⁰ MacBryde and Taussig.⁵¹ Tainter, Cutting and Hines.⁵²

47. MacKay, E. M., and Ryland, D. A.: Significance of Phenolsulfonphthalein Test of Renal Function, Arch. Int. Med. 55: 131 (Jan.) 1935.

48. Schulte, T. L., and Tainter, M. L.: Proc. Soc. Exper. Biol. & Med. 31: 1163 (June) 1934.

49. Rosenblum, Harold: Rate of Blood Flow in Patients Receiving Dinitrophenol, J. A. M. A. 104: 1592 (May 4) 1935. Freeman, Harry: J. Pharmacol. & Exper. Therap. 51: 477 (Aug.) 1934. Dunlop.⁵⁰ Rabinowitch and Fowler.⁵¹ Cutting, McIntire, and Tainter.⁵² Tainter, Stockton and Cutting.⁵³ MacBryde and Taussig.⁵⁴ Tainter, Stockton and Cutting.⁵⁵ Tainter and Cutting.⁵⁶ Looney and Hoskins.⁵⁷

50. Masserman, J. H., and Goldsmith, Harry: Dinitrophenol, J. A. M. A. 102: 523 (Feb. 17) 1934.

51. Salmon, A. R.: Presse méd. 42: 341 (March 2) 1935. Looney and Hoskins.⁵²

52. Tainter, Boyes and De Eds.⁵³ Dunlop.⁵⁴ Rabinowitch and Fowler.⁵⁵ Tainter, Stockton and Cutting.⁵⁶ Rosenblum.⁵⁷ MacBryde and Taussig.⁵⁸ Tainter and Cutting.⁵⁹ Looney and Hoskins.⁶⁰

53. Tainter, M. L.; Stockton, A. B., and Cutting, W. C.: Use of Dinitrophenol in Obesity and Related Conditions, J. A. M. A. 101: 1472 (Nov. 4) 1933. Stockton and Cutting.⁵⁴

54. Stockton, A. B., and Cutting, W. C.: Clinical Circulatory Effects of Dinitrophenol, J. A. M. A. 102: 912 (Sept. 22) 1934. Tainter, Stockton and Cutting.⁵⁵ Tainter, Stockton and Cutting.⁵⁶

ritic toxemias of pregnancy, and one had a malignant hypertension. In all ten, striking amelioration of the hypertension resulted very rapidly. The blood pressures dropped sharply within one to five weeks. One of the nephritic patients had a drop from 200/156 to 120/80 in three weeks and to 144/88 at the end of two more weeks. Prior to this for eighteen months she had had a hypertension ranging from 180/110 to 230/156, accompanied by severe headaches, dyspnea and dizziness, and irreducible by almost every drug and method in current use for hypertension. She now became asymptomatic for the first time in eighteen months. The blood pressure level stayed down for a few weeks after the dinitrophenol was stopped and then rose again, with a return of the original symptoms. The other nephritic patient's bloodpressure dropped within five weeks from 200/120 to 148/106. In the malignant hypertensive case the pressure fell in one week from 210/120 to 130/100 and at the end of the second week to 130/90.

TABLE 3.—Effects of Dinitrophenol on Electrocardiogram

Case	Duration of Treatment, Weeks	Total Amount of Sodium Dinitrophenol Ingested, Gm.	Changes in Electrocardiogram
1	16.0	18.0	None
2	81.0	245.6	None
3	3.0	4.2	None
4	20.0	42.2	None
5	5.0	6.8	None
6	2.0	3.3	None
7	13.0	32.2	None
8	17.0	35.6	None
9	11.0	18.4	None
10*	6.0	8.3	Marked sinus arrhythmia with occasional nodal extrasystoles (escape) and auricular extrasystoles
11	0.5	1.6	QRS low voltage, slurred in lead 3, T ₂ flattened, T ₃ inverted
12	11.0	14.3	Questionable Q wave in lead 3, QRS slurred in leads 2 and 3, T ₃ inverted
13	1.0	1.4	QRS questionably slightly slurred
14	6.0	16.0	T ₃ inverted, slight RS-T deviation
15	11.0	26.2	Questionable deep Qs; became deep Doubtful slurring of QRS ₂ ; became definite Questionable deviation of RT ₂ ; became deviated upward
16	11.0	23.5	Ventricular extrasystoles developed

* Patient with chronic nephritis and hypertension.

In all three cases there was no reduction in weight. Moreover, these three, together with the other seven in the hypertensive series, showed a very rapid fall of blood pressure. Therefore the assumption⁵⁴ that the fall of blood pressure is due to loss of body weight is invalid, and it must be concluded that the hypotensive effect is due to a direct action by the drug on the cardiovascular system.

Typical of the response of the essential hypertensive is one of the patients, a man of 39, who had been a hypertensive since the age of 19 and who had a familial history of hypertension. At the end of two weeks' treatment his blood pressure fell from 166/110 to 148/90 and in one more week to 116/82. In most of the patients the blood pressure rose gradually after the dinitrophenol was stopped, unless there were large, permanent losses of weight.

Bradycardia is an extremely unusual occurrence. It was found in two patients. No similar cases are reported in the literature. In one patient it was associated with latent icterus. The pulse rate dropped steadily from 88 to 56 at the end of four weeks' medication. During the third week the icteric index was 20 and the direct van den Bergh test showed a delayed, weakly positive reaction. The dinitrophenol was not

discontinued and the pulse rate gradually rose to normal within a week and remained normal thereafter. Coincidentally the icteric index and van den Bergh reaction returned to normal. In the second patient the pulse rate fell from 88 to 54 in one week and persisted at this level for a week after the drug was discontinued. Some light may be thrown on this case by the work of Gibbs and Reichert,⁵⁵ who found that the intravenous injection of dinitrophenol in the dog produces a very marked vagal stimulation of a centric nature.

Phlebitis, no reports of which have appeared in the literature as yet, appeared in a woman during the fifteenth week of medication. For three weeks prior to the onset of the phlebitis she had been developing a peripheral neuritis. First discrete, extremely painful, red nodules appeared along the course of the veins of her left leg. Within a few days the condition became more pronounced and a frank phlebitis ensued. Swelling of the leg developed and became marked. The condition subsided within ten days after the discontinuance of the drug.

"Dinitrophenol possesses no power of depleting the heart of its glycogen and . . . in this respect it differs from thyroxine. . . . In acute poisoning, dinitrophenol causes a marked reduction of liver and muscle glycogen but affects only slightly or not at all the heart glycogen, unless anoxemia supervenes. . . . In chronic dinitrophenol poisoning the glycogen reserves of the heart, liver and muscle are at normal levels within four hours after the last injection."⁵⁶

ELECTROCARDIOGRAPHIC CHANGES

It is really amazing in view of the widespread use of, and interest in, dinitrophenol that electrocardiographic studies are so meager. Tracings in rabbits⁵⁶ and in cats⁵⁷ showed moderate changes. Similar changes have been observed in five human beings;⁵⁸ no changes were reported in eleven other subjects.⁵⁹

In the present series electrocardiographic studies were made in sixteen patients on prolonged dinitrophenol medication (table 3). In the majority of patients the drug was given for weeks; in one it was given for eighty-one weeks. In nine patients the electrocardiograms showed no changes. In seven there were changes (in practically all, of a minor character), as listed in the table. As Taussig⁵⁶ states, such changes indicate the development of a "prolongation of the recovery time of the heart muscle together with a decrease in the voltage initiated by ventricular contraction and suggest that some alteration in the metabolism of the myocardium has resulted from dinitrophenol intoxication. . . . There is no evidence that dinitrophenol causes death through a toxic action on the heart."

CARBOHYDRATE METABOLISM

Most reports show that dinitrophenol produces hyperglycemia in animals, the degree of the response being proportional to the dosage employed.⁶⁰ On the other hand, Cutting and Tainter⁶¹ found the blood sugar

55. Gibbs, W., and Reichert, E. T.: *Am. Chem. J.* **13**: 289, 1891.
56. Taussig, B. L.: *J. Pharmacol. & Exper. Therap.* **56**: 223 (Feb.) 1936.
57. de Chatel, A., and Motika, J.: *Deutsches Arch. f. klin. Med.* **176**: 709 (Aug. 22) 1934.
58. de Chatel and Motika.⁵⁷ MacBryde and Taussig.⁵⁷
59. Jackson, Harry, and Duvall, A. J.: *Dinitrophenol Poisoning*, J. A. M. A. **102**: 1844 (June 2) 1934. Rabinowitch and Fowler.⁵ Rosenblum.⁶² Hitch and Schwartz.⁶³
60. Magne, H.; Mayer, A., and Plantefol, L.: *Ann. de physiol. et de phys. biol.* **8**: 51, 70, 1932. Moraes, A., and Casier, H.: *Compt. rend. Soc. de biol.* **109**: 561 (Jan. 30) 1932. Heymans, C., and Casier, H.: *ibid.* **111**: 1078 (Jan. 6) 1933. Ashe, W. F., Jr.: *Proc. Soc. Exper. Biol. & Med.* **22**: 1062 (April) 1935. Hall, Field, Sahyun, Cutler, and Tainter.¹³ Heymans and Bouckaert.¹² Cahn and Houzet.¹⁴
61. Cutting, W. C., and Tainter, M. L.: *Proc. Soc. Exper. Biol. & Med.* **29**: 1268 (June) 1932.

been overcome by Himsworth,⁶⁶ who determined that the area enclosed by the blood sugar curve, above the resting level from which it starts, remains constant for the same individual, provided the composition of the diet is maintained constant. Each individual has his own characteristic area for a particular diet. The absolute values of the areas, traced out in different subjects by individual curves obtained on the same diet, vary greatly and are determined by unknown factors peculiar to the individual. For this reason, only curves obtained on the same subject may be compared. Himsworth's method described in 1935 is especially valuable in

Blood Sugar in Mg. per 100 Cc.														Sodium Dinitro- phenol, Average Daily Dose (Mg./ Kg.)	Dextro- trose Toler- ance	Duration of Medica- tion (Days)	Total Amount of Sodium Dinitro- phenol Ingested (Gm.)
Before						After											
Case	Fast- ing	1/2 Hr.	1 Hr.	2 Hr.	3 Hr.	Sur- face Area (Mg./ Min.)	Fast- ing	1/2 Hr.	1 Hr.	2 Hr.	3 Hr.	Sur- face Area (Mg./ Min.)					
A: Author.....																	
1	86	138	125	86	...	2,500	107	172	162	158	...	3,725	D	4.2	5	1.5	
2	91	172	220	168	...	11,050	...	...	...	...	...	...	I	3.8	105	27.2
	94	162	192	115	...	7,750	94	136	120	94	...	2,400	I	3.1	56	13.7	
3	80	150	130	115	...	4,000	94	120	115	107	...	1,100	I	5.4	28	2.4	
4	68	111	130	130	...	5,700	107	136	150	111	...	2,801	I	5.7	56	19.5	
5	103	157	176	158	...	6,450	84	126	158	125	...	5,450	I	4.2	60	6.1	
	...	...	...	...	...	...	84	125	143	107	...	4,350	I	4.2	108	11.1
6	79	94	115	150	...	2,925	86	118	73	100	...	900	I	5.0	70	17.5	
	...	...	...	...	...	...	100	130	96	81	...	775	I	5.3	63	28.5
7	75	136	107	96	...	3,900	96	136	115	91	...	2,000	I	4.5	91	40.4	
8	94	125	143	103	...	3,600	115	100	125	130	...	875	N	5.0	420	158.6	
	...	...	...	...	...	...	91	111	136	103	...	3,000	N	5.8	560	242.8
9	80	150	115	125	...	5,050	91	150	143	130	...	5,000	N	4.2	77	26.2	
	...	...	...	...	...	...	96	150	143	130	...	4,500	N	2.8	21	4.9
10	91	111	150	136	...	4,525	91	130	176	115	...	5,250	N	2.2	7	1.4	
11	...	...	...	...	...	...	81	125	77	69	...	1,350	N	3.0	105	31.0
12	...	...	...	...	...	...	94	115	150	79	...	2,975	N	2.7	35	14.1
13	...	...	...	...	...	...	94	136	120	100	...	2,400	N			
	...	...	...	...	...	...	91	115	103	125	...	2,400				
B: MacBryde and Taussig																	
1	86	114	158	152	112	7,825	83	147	162	187	129	10,075	D	0.3	7	2.1	
2	91	119	146	136	101	5,375	90	119	142	118	112	4,400	D	0.3	7	2.1	
3	94	141	129	113	96	3,850	106	192	210	164	130	11,500	D	0.3	14	4.2	
4	104	164	164	132	104	5,350	99	200	208	124	112	8,950	D	0.3	14	4.2	
5	90	129	146	128	109	6,675	78	139	149	127	116	8,450	D	0.3	14	4.2	
6	94	131	145	122	70	4,750	93	128	139	127	58	4,325	N	0.3	14	4.2	

D, decreased tolerance; I, increased tolerance; N, no change in tolerance.

67. MacBryde, C. M., and Taussig, B. L.: Functional Changes in Liver, Heart and Muscles, and Loss of Dextrose Tolerance Resulting from Dinitrophenol. *J. A. M. A.* **105**: 13 (July 6) 1935.

Byron.⁶⁸ For example, the accompanying chart shows the graph of patient 6 (table 4 B) in MacBryde and Taussig's series.

Results in Normal Persons.—Of nine patients studied by MacBryde and Taussig (table 4 B), one showed a slightly increased tolerance, two practically no change, and six definitely decreased sugar tolerance (of whom four were very marked). The fasting blood sugar showed no significant change. MacBryde and Taussig⁶⁷ report that "the loss of tolerance was evident after seven days and increased in degree with the duration of administration and with the total dose given. . . . No patient showed an increased ability to utilize dextrose." This conclusion is unjustified, as a study of the

ance and one a decreased tolerance. In the remaining three patients of the series (11, 12 and 13), unfortunately no control curves were made. Whether their tolerance remained unchanged, increased or decreased it is impossible to state. But a study of the curves according to conventional methods reveals, at the least, a normal or increased sugar tolerance. There was no significant change in the level of the fasting blood sugar in the series.

Results in Patients with Diabetes Mellitus.—The prevailing opinion holds that the carbohydrate tolerance of diabetic patients is depressed by all measures except moderate exercise, which stimulate the general metabolism.⁶⁹ No method of comparing diabetic curves has

TABLE 5.—Effects of Dinitrophenol on Dextrose Tolerance in Diabetes Mellitus

		Blood Sugar in Mg. per 100 Cc.												Sodium Dinitro- phenol, Average Daily Dose (Mg./ Kg.)	Dura- tion of Medica- tion (Days)	Total Amount of Sodium Dinitro- phenol Ingested (Gm.)			
		Before						After											
		Case	Fasting	½ Hr.	1 Hr.	2 Hr.	3 Hr.	Sur- face Area (Mg./ Min.)	Fasting	½ Hr.	1 Hr.	2 Hr.	3 Hr.	Sur- face Area (Mg./ Min.)	Dex- trose Tol- erance				
A: Author....	Predia- betic	1	111	154	188	188	...	2,500	96	150	103	107	...	1,850	I	2.7	23	8.1	
		2	79	206	240	143	...	...	...	...	...	...	...	...	..	3.2	14	3.2
		3	107	188	240	192	...	...	...	...	...	...	...	...	..	3.2	21	6.3
		4	120	200	260	286	...	...	...	...	...	...	...	...	..	3.6	42	14.7
	Dia- betic	5	136	250	286	176	103	214	222	115	I	3.1	28	6.1
		6	136	222	272	300	115	168	182	262	I	2.2	42	15.4
		7	115	182	192	222	91	130	150	120	I	4.8	42	15.4
		8	172	250	300	300	162	188	214	300	I	4.7	35	12.6
		9	150	172	272	200	2.4	24	4.2
B: MacBryde and Taussig	Predia- betic	7	153	224	313	322	262*	.....	153	266	310	468	362	.....	D	(Gm./Day) 0.3	14	4.2
		...	...	...	...	...	...	...	180	230	318	330	280†	.....	D	...	...	...
	Dia- betic	11	140	200	210	244	183†	.....	145	228	264	257	248	.....	D	0.3	21	6.3
		12	172	239	312	348	280‡	.....	196	298	312	348	280	.....	D	0.3	14	4.2
	...	...	...	...	...	...	.....	180	320	360	414	304	.....	D	0.3	23	8.4	
C: Wishnofsky et al.	Mild and moder- ately severe cases	1	242	400	428	.....	.....	.....	152	328	336	.....	.....	.....	I	0.3	7	2.1
		2	250	325	364	.....	.....	.....	196	308	384	.....	.....	.....	I	0.3	7	2.1
		3	150	250	300	.....	.....	.....	138	240	250	.....	.....	.....	I (s.)§	0.3	7	2.1
		4	124	364	422	.....	.....	.....	240	360	460	.....	.....	.....	D	0.3	7	2.1
		5	176	256	221	.....	.....	.....	146	242	182	.....	.....	.....	I	0.3	7	2.1
		6	168	300	378	.....	.....	.....	228	352	374	.....	.....	.....	D	0.3	7	2.1
		7	234	356	...	.....	.....	.....	220	328	...	.....	.....	.....	N	0.3	7	2.1
		8	238	410	374	.....	.....	.....	230	405	508	.....	.....	.....	D	0.3	7	2.1
		9	222	378	468	.....	.....	.....	202	300	428	.....	.....	.....	I (s.)	0.3	7	2.1
		10	98	224	264	.....	.....	.....	126	224	296	.....	.....	.....	D (s.)	0.3	7	2.1
		11	224	332	364	.....	.....	.....	244	360	328	.....	.....	.....	D (s.)	0.3	7	2.1
	Severe cases	1	374	526	566	.....	.....	.....	476	600	750	.....	.....	.....	D	0.3	7	2.1
		2	272	410	556	.....	.....	.....	230	422	500	.....	.....	.....	I (s.)	0.3	7	2.1
		3	288	460	516	.....	.....	.....	302	404	516	.....	.....	.....	N	0.3	7	2.1
		4	284	454	428	.....	.....	.....	272	400	508	.....	.....	.....	N	0.3	7	2.1
		5	283	400	385	.....	.....	.....	332	474	526	.....	.....	.....	D	0.3	7	2.1
		6	252	428	440	.....	.....	.....	150	273	268	.....	.....	.....	I (tn.)	0.3	7	2.1
		7	340	536	680	.....	.....	.....	416	536	.....	.....	.....	.....	I	0.3	7	2.1
		8	364	566	508	.....	.....	.....	248	394	484	.....	.....	.....	I (tn.)	0.3	7	2.1
		9	266	384	500	.....	.....	.....	230	348	411	.....	.....	.....	I	0.3	7	2.1

* Prediabetic.
† Diabetic.

‡ After omission of the drug for a period of 14 days.
§ s. indicates slight; m., marked.

tolerance areas shows. Thus, patient 9 shows no greater degree of loss of sugar tolerance than does patient 3. Wishnofsky and his co-workers⁶⁸ studied ten normal patients. Inspection of table 4 C shows that the fasting blood sugar level was raised significantly above the control fasting blood sugar level, but with no development of hyperglycemia. Of the ten patients, seven showed a decreased sugar tolerance, only three being marked. On the other hand, three showed an increased tolerance. In the present series (table 4 A), thirteen patients were studied. Ten had control dextrose curves. Seven of the ten showed striking increases in dextrose tolerance, the changes being so marked that there can be no question of interpretation; two showed no change in toler-

ance. One must rely, therefore, on the level of the fasting blood sugar and the peak attained. In three diabetic patients (table 5 B), MacBryde and Taussig⁶⁷ found an impaired tolerance, although inspection of the table shows the impairment to be moderate. Wishnofsky and his co-workers,⁶⁸ using a statistical method of analysis⁷⁰ in a series of eleven cases of mild and moderately severe diabetes and nine cases of severe diabetes (table 5 C), concluded that there was no significant change in the mean values of the fasting blood sugar or dextrose tolerance curves before and after the administration of dinitrophenol. This was true regardless of the severity of the diabetes. Inspection of table

68. Wishnofsky, Max; Kane, A. P.; Shlevin, E. L., and Byron, C. S.: Influence of Dinitrophenol on Carbohydrate Metabolism, Arch. Int. Med. 56: 374 (Aug.) 1935.

69. Dinitrophenol Contraindicated in Diabetes, Queries and Minor Notes, J. A. M. A. 102: 2135 (June 23) 1934.
70. Fisher, R. A.: Statistical Methods for Research Workers, ed. J. London, Oliver and Boyd, 1930, p. 104.

5 C shows that of the eleven patients in the mild and moderately severe group five showed an increased tolerance, one no change, and five a decreased tolerance. In the group of cases of severe diabetes, five showed an increased tolerance (two being marked), two no change, and two a decreased tolerance. The level of the fasting blood sugar paralleled the change in dextrose tolerance. In the present series (table 5 A) there were four cases of prediabetes and five of moderately severe diabetes. Studies in one case of prediabetes and four cases of diabetes showed an increased tolerance with a significant, though moderate, decrease in fasting blood sugar.

These three sets of studies are far from agreeing. The only difference is that the studies of MacBryde and Taussig, and those of Wishnofsky and his co-workers, were carried out for short periods of time only (from seven to twenty-eight days). Mine were carried out with fairly prolonged dinitrophenol administration (from twenty-one to 420 days). It is interesting in this connection to note that in patient 1 of the present series (table 4 A), in whom the drug was used only five days, a decreased tolerance was found, in agreement with the results of MacBryde and Taussig and of Wishnofsky and his co-workers. Apparently the conclusions to be drawn are that, with short courses of dinitrophenol administration in normal individuals, there is moderate elevation of the fasting blood sugar level (though not hyperglycemia) and a moderate impairment of carbohydrate tolerance, in the majority of cases. With prolonged administration there is no change in the fasting blood sugar and a marked increase of carbohydrate tolerance. In diabetic patients, on short courses of dinitrophenol administration, the results are variable, the dextrose tolerance being apparently increased as often as decreased with parallel changes in the fasting blood sugar. With prolonged administration in cases of diabetes there is apparently an increase of carbohydrate tolerance. The bearing of these results on possible application in the field of diabetes mellitus is self evident. In no case of the three series reported (a total of thirty-two cases of diabetes) was there any evidence of toxicity. This lack of increased toxicity is in startling contrast to the currently held view.⁶⁹

GASTRO-INTESTINAL TRACT

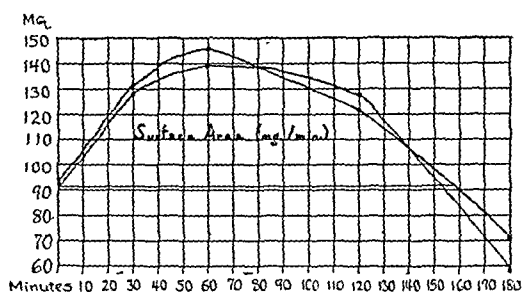
Gastro-intestinal complaints occupy only a minor field in dinitrophenol therapy. Cases of severe gastro-enteritis, anorexia and vomiting are uncommon.⁷¹ In the chronic intoxication of munition workers, the French writers⁷² reported anorexia, nausea, vomiting, diarrhea and abdominal pain. In the present series, gastro-intestinal complaints were few and minor. In three cases transient diarrhea developed. An occasional patient vomited at times after swallowing a capsule, evidently on account of gastric irritation. More troublesome was the development of severe "heartburn" in four patients, which was readily controlled by sodium bicarbonate. In general, the clinical effects of dinitrophenol on the gastro-intestinal tract are negligible, except in chronic intoxication.

METABOLIC LEVELS AND BLOOD CHOLESTEROL

Writers are in general accord⁷³ that the basal metabolic rate in obesity is usually normal. "In a fairly high

percentage of obese patients, we have found the inconsistent finding of an increase in the metabolic rate. I find that other investigators have found the same thing."⁷⁴ There is little relation between the basal metabolic rate and the degree of obesity.⁷⁵ The foregoing statements are substantiated by the results of Tainter, Stockton and Cutting³⁴ and my results (table 6). The average increase in the basal metabolic rate is roughly 11 per cent for each 0.1 Gm. of the daily dose of dinitrophenol (table 6). Variations in individual patients are marked, however. "Unlike thyroxine, dinitrophenol appears to have about the same effect on metabolism, regardless of the level before treatment . . . an absence of the initial period of intoxication, that follows the administration of thyroxine."⁷⁶

Tolerance is built up rapidly, so that it requires a higher dosage to produce a like increment of basal metabolic rate in a given patient as the drug is administered continuously. It is not unusual for some patients to fail to respond to the highest therapeutic doses with an increase of the basal metabolic rate or loss of weight. In other patients no weight is lost, even though the basal metabolic rate is raised to exceedingly high levels.



Dextrose tolerance curve areas: ordinate, blood sugar in milligrams per hundred cubic centimeters; abscissa, time of dextrose tolerance test in minutes.

In thyroid disease there is a striking inverse relationship between the level of the basal metabolic rate and the blood cholesterol concentration.⁷⁷ This relationship does not hold between dinitrophenol and blood cholesterol. Consequently the changes in blood cholesterol present in thyroid disease are not related directly to the metabolic rate but to other actions of the thyroid secretion.⁷⁸ The reports on blood cholesterol fluctuation in dinitrophenol therapy are very few and are somewhat conflicting.⁷⁹ In a group of thirteen excellently controlled patients, Grant and Schube⁸⁰ found in most an initial elevation of blood cholesterol, then a drop below the original level, followed by a gradual return to "normal." In the present series, blood cholesterol determinations were followed in five cases. No consistent results were obtained.

(To be continued)

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72. Mayer, A.: *Toxicity of Dinitrophenol*, Paris, 1918, quoted by Hunt.⁶¹
73. Epstein, A. A.: *Bull. New York Acad. Med.* 10:389 (July) 1934. Evans, F. A., and Strang, J. M.: *The Treatment Obesity with Low Caloric Diets*, J. A. M. A. 97:1063 (Oct. 10) 1931. Newburgh.²⁸

74. Minnig, Arnold: *M. J. & Rec.* 126:171 (Aug. 3) 1927. Bernhardt, Hermann: *Endocrinology* 14:209 (July-Aug.) 1930. Thomas.⁸¹ Mazer and Goldstein.²⁵
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77. Mason, R. L.; Hunt, Helen M., and Hurxthal, Lewis: *New England J. Med.* 203:1273 (Dec. 25) 1930.
78. Cutting, W. C.; Rytand, D. A., and Tainter, M. L.: *J. Clin. Investigation* 13:547 (July) 1934.
79. Dunlop.⁹ Emmer.⁶¹ Cutting, Rytand and Tainter.³⁴ Finkelman and Stephens.⁷⁸ Looney and Hoskins.⁷
80. Grant, L. F., and Schube, P. G.: *J. Lab. & Clin. Med.* 20:56 (Oct.) 1934.

Clinical Notes, Suggestions and New Instruments

TULAREMIA FROM THE BITE OF A NURSING KITTEN

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The chief interest in this case is the unusual mode of contagion. A woman, aged 59, owned a female cat that had two nursing kittens. The cat had caught a rabbit and had eaten part of it. Within a few days the cat became ill and the kittens also appeared ill two days later. While trying to feed the kittens, the patient was bitten by one of them on the index finger. Both kittens died the following day but the cat slowly recovered.

The patient had enjoyed good health all her life. Three days following the bite by the kitten, she developed headache, malaise and chilliness. On the fifth day the finger became red, swollen and painful. She had a hard chill and a fever of 103 F. Pain and streaks of erythema extended from the finger to the axilla. Large inflammatory glands appeared on the inner aspect of the arm and in the axilla. The fever abated somewhat after a week but was continuous for a period of four weeks. The patient recovered two months after the onset of the illness. The only relevant laboratory observation consisted of serum agglutination of *Bacterium tularensis*. On the thirteenth day agglutination was complete in a dilution of 1:80 and on the seventeenth day in a dilution of 1:640. The white blood count was slightly increased; the urine was normal.

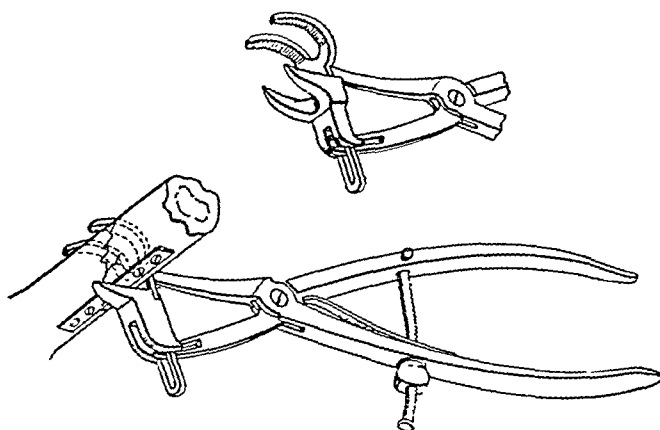
405 Hume-Mansur Building.

NEW BONE-HOLDING CLAMP

H. P. RUSH, M.D., SAN ANGELO, TEXAS

Ever since Dr. W. A. Lane introduced the use of metal plates in the open reduction and fixation of fractures there has been some kind of bone clamp used to hold plate and fractured parts in place. This has been done with more or less difficulty and inconvenience to the operator.

I have devised an instrument which I believe is an improvement and which has proved very satisfactory to me. It consists of two long handles with lock effect about 2 inches from the clamp proper. In the upper handle at the distal end it has a bar attached, which has two prongs at the lower portion. The upper portion extends about $2\frac{1}{2}$ to 3 inches upright for the



Bone holding clamp.

purpose of carrying the shuttle. The shuttle carries the upper prong at its lower portion to complete the clamp. The shuttle may have two prongs and is interchangeable. In the lower handle there is placed a threaded bar, which is carried through the upper handle with a thumb tap. The distal ends of the handles are curved in such a manner that it allows easy application without pressure on other tissue and gives it, in a way, a retractor effect. The handles are held apart when not in use with a small spring. It is made in three sizes.

The instrument is easily applied in the transverse manner and in this way does away with the upright handle and allows free use of brace and bit or the screw driver in drilling and applying screws for either bones or metal plates. There is placed in the handle a bar and screw effect which, after the instrument has been applied, may be tightened and the bone and plate held just as snugly and securely as with other bone-holding instruments. Too, it prevents the assistant from being in the way of the operator. By reason of these advantages this instrument, in my judgment, lessens the time of operation considerably, which is advantageous to the patient. The drawing of this instrument illustrates the advantages set forth.

301 Western Reserve Building.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1936

TWENTY-FIFTH ANNUAL REPORT

In preparing this annual review, data have been obtained from the same ninety-three cities which have been referred to in similar articles for the years beginning with 1930. A communication was addressed to the health officer of each city asking that he furnish the number of deaths from typhoid, excluding paratyphoid, for the year 1936. Furthermore, the health officer was asked to designate not only the total number of typhoid deaths but also subdivide these as to resident

TABLE 1.—*Death Rates of Fourteen Cities in New England States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Fall River.....	0.2*	2.2	2.3	8.5	13.4	13.5	0.9	0.9	0.0
Lynn.....	0.2	1.5	1.6	3.9	7.2	14.1	1.0	1.0	0.0
Bridgeport.....	0.3	0.5	2.2	4.8	5.0	10.3	0.0	0.0	0.0
Somerville.....	0.4	1.3	1.6	2.8	7.9	12.1	0.0	0.0	0.0
Waterbury.....	0.4	1.2	1.0	8.0	18.8	...	0.0	2.0	0.0
Boston.....	0.6	1.2	2.2	2.5	9.0	16.0	0.1	0.5	0.9
Worcester.....	0.6	1.0	2.3	3.5	5.0	11.8	0.0	0.5	0.0
New Haven.....	0.7	0.6	4.4	6.8	18.2	30.8	1.2	0.0	0.0
Cambridge.....	0.9	2.1	4.3	2.5	4.0	9.8	0.0	0.0	0.0
Lowell.....	1.0*	2.6	2.4	5.2	10.2	13.9	1.0	1.0	0.0
Springfield.....	1.0	0.4	2.0	4.4	17.6	19.9	0.0	0.0	0.0
New Bedford.....	1.1*	1.5	1.7	6.0	15.0	16.1	1.8	0.0	1.5
Providence.....	1.1	1.3	1.8	3.8	8.7	21.5	0.8	0.8	1.2
Hartford.....	1.2	1.3	2.5	6.0	15.0	19.0	0.5	0.6	0.6

*Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau.

and nonresident. Special comment was solicited on any unusual outbreak of typhoid that occurred during the year. In each instance (except Scranton, where the figures come from the Pennsylvania State Health Department) the data were supplied by the respective health departments.

As the United States Census Bureau is not prepared to furnish an estimate of population for these cities, the health officer was asked to designate the local estimate which he is using in his statistical compilations. A review of these figures as submitted indicates that they do not vary to any great extent from the 1930 census figures, and if there has been a misjudgment in estimating these population figures the error in the rates is

The preceding articles in this series were published in *THE JOURNAL*, May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; May 31, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777; April 5, 1919, p. 997; March 6, 1920, p. 672; March 26, 1921, p. 860; March 25, 1922, p. 890; March 10, 1923, p. 691; Feb. 2, 1924, p. 389; March 14, 1925, p. 813; March 27, 1926, p. 948; April 9, 1927, p. 1148; May 19, 1928, p. 1624; May 18, 1929, p. 1674; May 17, 1930, p. 1574; May 9, 1931, p. 1576; April 30, 1932, p. 1550; May 13, 1933, p. 1491; May 19, 1934, p. 1677; June 8, 1935, p. 2023, and June 6, 1936, p. 1983.

not significant. In a few instances (as indicated in the footnote of tables 1 to 8) the health department did not furnish a local estimate and the 1930 census figures were used.

As has already been stated, the deaths from paratyphoid have been excluded. A special note has been made in table 9 of cities where all deaths occurred among nonresidents. Another symbol has been used to indicate those cities in which more than one third of the reported deaths were stated to have been among

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Jersey City.....	0.2	0.9	2.7	4.5	7.2	12.6	0.6	0.0	0.0
Newark.....	0.3	0.9	2.3	3.3	6.8	14.6	0.2	0.0	0.2
Reading.....	0.4	1.6	6.0	10.0	31.9	42.0	1.8	0.9	0.0
Rochester.....	0.4	1.7	2.1	2.9	9.6	12.8	0.6	0.3	0.0
Buffalo.....	0.6	2.7	3.9	8.1	15.4	22.8	0.3	0.3	0.3
Utica.....	0.6	1.1	3.8*	...	...	...	0.0	1.0	0.0
Yonkers.....	0.7	0.5	1.7	4.8	5.0	10.3	4.8	1.4	0.0
New York.....	0.8	1.3	2.6	3.2	8.0	13.5	0.4	0.5	0.6
Syracuse.....	0.8	0.8	2.3	7.7	12.3	13.6	0.0	0.5	0.5
Elizabeth.....	0.9	1.6	2.4	3.3	8.0	16.6	0.8	0.0	0.0
Philadelphia.....	0.9	1.1	2.2	4.9	11.2	41.7	0.7	0.9	0.9
Pittsburgh.....	0.9	2.4	3.9	7.7	15.9	65.0	0.7	0.0	0.1
Paterson.....	0.9	1.0	2.3	4.1	9.1	19.3	0.7	0.6	1.5
Eric.....	1.0	0.9	2.3	6.0	49.0	46.6	0.8	0.0	1.7
Albany.....	1.1	1.3	5.6	8.0	18.6	17.4	1.5	0.8	0.8
Trenton.....	1.1	2.1	8.2	8.6	22.3	23.1	0.8	0.0	0.8
Scranton.....	1.4	1.8	2.4	3.8	9.3	31.5	0.0†	0.0†	0.0
Camden.....	2.8	4.4	5.9	4.9	4.5	4.0	0.8	2.5	1.7

* Incomplete data.

† Typhoid deaths for Scranton furnished by Pennsylvania Department of Health, Harrisburg.

‡ Rate computed from 1930 census population, as no local estimate was given.

nonresidents. The need of giving particular heed to this question of residence is well illustrated in the case of Columbus, where the health department reported twelve deaths from typhoid and stated that all were among nonresidents. Fifty-seven cases occurred at the Columbus State Hospital for the Insane and there were nine deaths in this group. The health officer reports that this institution is not under the jurisdiction of the local health department. There were reported thirty-

TABLE 3.—*Death Rates of Nine Cities in South Atlantic States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Baltimore.....	1.4	3.2	4.0	11.8	23.7	35.1	0.9	1.5	1.3
Wilmington.....	1.5	3.1	4.7	25.8*	23.2*	33.0	0.9	0.9†	1.9
Jacksonville.....	1.7	4.4	...	...	...	1.3	0.0	1.4	1.4
Miami.....	2.2	3.5	...	...	...	...	3.1	2.8	1.8
Richmond.....	2.5	1.9	5.7	9.7	15.7	34.0	2.7	2.7	2.8
Washington.....	2.6	2.8	5.4	9.5	17.2	36.7	1.6	2.6	1.6
Tampa.....	3.0	3.8	19.1	49.9*	...	...	0.0	6.6	0.0
Norfolk.....	4.2	2.2	2.8	8.8	21.7	42.1	0.0	5.4†	5.4
Atlanta.....	7.2	11.1	14.5	14.2	31.4	68.4	3.2	4.6	3.9

* Incomplete data.

† Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau.

three deaths in New Orleans and it is stated that twenty-five of these occurred among nonresidents. El Paso reports five out of seven deaths among nonresidents. Houston, with thirteen deaths, has made no separation on the basis of residence.

Six of the large New England cities report no death from typhoid in 1936 (table 1). Bridgeport, Somerville and Springfield report no death for three years in succession. Boston had but one death in 1936 and this is reported as having occurred in a non-resident. The New England cities as a whole (population 2,630,017) again report a new low record of 0.42, which is but 60 per cent of the 1931-1935 quinquennial average.

The Middle Atlantic states have a group rate which is approximately the same as that for the preceding year (0.56 in 1936, 0.55 in 1935). There were no deaths recorded in Utica and Syracuse for 1936, and in Scranton there have been three consecutive years

TABLE 4.—*Death Rates of Eighteen Cities in East North Central States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Grand Rapids.....	0.2	1.0	1.9	9.1	25.5	29.7	0.6	0.0	0.0
Milwaukee.....	0.2	0.8	1.6	6.5	13.6	27.0	0.3	0.0	0.2
Chicago.....	0.4	0.6	1.4	2.4	8.2	15.8	0.3	0.4	0.6
Detroit.....	0.6	1.3	4.1	8.1	15.4	22.8	0.5	0.3	1.1
Flint.....	0.7	1.6	4.6	22.7	18.8	46.9	1.2	0.6	1.2
South Bend.....	0.7	...	...	...	...	...	0.0	0.9	1.8
Akron.....	0.8	1.5	2.4	10.6	21.0	27.7*	0.8	0.7	0.4
Dayton.....	0.8	1.9	3.3	9.3	14.8	22.5	1.8	1.0	1.0
Canton.....	0.9	1.4	3.3	8.9	...	...	1.0†	0.9	0.9
Peoria.....	0.9	0.2	3.7	5.7	16.4	15.7*	1.7	0.0	0.0
Cleveland.....	1.1	1.0	2.9	4.0	10.0	15.7	1.0	0.6	0.8
Youngstown.....	1.1	1.1	7.2	19.2	29.5	35.1	1.1	0.0	0.6
Indianapolis.....	1.2	2.7	4.6	10.3	20.5	30.4	0.8	1.3	1.1
Toledo.....	1.3	3.0	5.8	10.6	31.4	37.5	1.0	1.3	1.3
Cincinnati.....	1.4	2.5	3.2	3.4	7.8	30.1	1.9	1.3	1.5
Evansville.....	1.9	6.2	5.0	17.5	32.0	35.0	0.0	4.7	1.9
Columbus.....	2.0	2.1	3.5	7.1	15.8	40.0	3.7	2.0	2.0
Fort Wayne.....	2.2	4.2	12.9	7.3	...	...	0.0	0.0	6.7

* Incomplete data.

† Rate computed from 1930 census population, as no local estimate was given.

without a death. The honor roll list for this group of cities is not quite as good as for 1935, there being but three cities with no deaths, compared with seven in the preceding year. Elizabeth, having successfully passed

TABLE 5.—*Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Louisville.....	2.3	3.7	4.9	9.7	19.7	52.7	1.4	1.6	2.5
Birmingham.....	3.9	8.0	10.8	21.5	41.2	41.7	5.0†	4.0	5.8
Chattanooga.....	4.7	8.0	18.6	27.2	35.8*	...	0.0	2.4	8.1
Nashville.....	5.6	13.2	17.8	30.7	40.2	61.2	4.4	7.0	2.6
Knoxville.....	5.7	10.7	20.8	25.3*	...	...	4.1	5.4	0.9
Memphis.....	7.9	9.3	18.9	37.7	42.5	53.3	4.7	5.0	8.4

* Incomplete data.

† Rate computed from 1930 census population, as no local estimate was given.

through four consecutive years without a death, reports one resident death in 1936. It is stated that the disease was contracted in another state by an Elizabeth resident. The four cities in this group, with a population

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
St. Paul.....	0.7	1.4	3.4	3.1	9.2	12.8	0.7	0.3	0.0
Wichita.....	0.7	1.2	6.3	...	...	...	1.9	0.0	0.0
Minneapolis.....	0.8	0.8	1.9	5.0	10.6	22.1	0.9	1.2	1.2
Omaha.....	0.9	1.3	3.3	5.7	14.9	40.7	0.9	0.0	0.9
Duluth.....	1.0	1.1	1.7	4.4	19.8	45.5	0.0	1.0	1.0
Kansas City, Kan.....	1.1	1.7	5.0	9.4	31.1	74.5*	2.3	1.6	1.6
Kansas City, Mo.....	1.5	2.8	5.7	10.6	16.2	25.6	0.5	1.0	1.4
St. Louis.....	1.6	2.1	3.9	6.5	12.1	14.7	0.8	0.7	1.7
Des Moines.....	2.1	2.4	2.2	6.4	15.9	23.7	2.8	2.1	6.2

* Incomplete data.

of more than half a million, all had rates under 1.0, New York for the fifth consecutive year, Philadelphia and Buffalo for the fourth, and Pittsburgh for the second. Yonkers reports seven resident deaths with no comment regarding any special outbreak. The rate for this city of 4.8 is the highest in the group and is equal

to the rate for the same city for the five years 1916 to 1920. This is in striking contrast to the low rate of recent years. Jersey City records two deaths, both in nonresidents, one a resident of Bayonne, the other of Cliffside. Reading, with two resident deaths, reports an outbreak of twenty-one cases (fourteen resident,

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Tulsa.....	1.1	8.3	16.2*	....	....	....	0.7†	0.7	2.7
Houston.....	3.2	4.8	7.6	14.2	38.1	49.5*	3.8	2.2	2.8
San Antonio.....	4.2	4.6	9.3	23.3	29.5	35.9	2.7	3.3	4.9
Oklahoma City.....	4.3	7.4*	....	....	....	....	4.3†	2.5	5.9
Fort Worth.....	4.6	5.9	6.1	16.3*	11.9	27.8	3.3	1.2	5.9
El Paso.....	4.9	9.1	10.8	30.7	42.8	....	6.8†	7.6	3.8
Dallas.....	5.4	7.3	11.2	17.2	....	....	1.5†	2.9	4.3
New Orleans.....	9.6	9.9	11.6	17.5	20.9	35.6	6.5	7.4	8.9

* Incomplete data.

† Rate computed from 1930 census population, as no local estimate was given.

seven suburban) traced to a privately owned contaminated well used by a manufacturer in a section of the city recently annexed. Of the thirty-one deaths reported from New York City it is stated that thirty occurred among residents. An outbreak of fifty cases occurred in October 1936, traced to a memorial cake used in a Greek Orthodox Church on September 13.

The South Atlantic cities recorded a marked reduction in the death rate for the group as a whole (1.55 in 1936, 2.58 in 1935). Tampa and Norfolk report no deaths. These cities had the highest rate in the group for 1935, 6.6 and 5.4 respectively. Jacksonville's excellent record of no death in 1935 was spoiled by the reporting of two resident deaths in 1936. Atlanta, which has long had a high rate among the cities of this group, has the highest rate again in 1936, although the rate of 3.2 is significantly lower than that of previous years and quinquennial averages. Of four deaths in Miami, three are recorded among nonresidents. Of the ten deaths in Atlanta, five are reported as nonresident. Being a hospital center for the surrounding area, the ratio of nonresident to total deaths in Atlanta has been high for many years.

TABLE 8.—*Death Rates of Eleven Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population*

	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910	1936	1935	1934
Long Beach.....	0.2	1.1	2.1*	....	....	....	0.6	0.0	0.6
Seattle.....	0.6	2.2	2.6	2.9	5.7	25.2	0.5	0.8	0.0
Tacoma.....	0.7	1.8	3.7	2.9	10.4	19.0	0.9	0.0	0.0
Los Angeles.....	0.8	1.5	3.0	3.6	10.7	19.0	1.0	0.9	1.0
Portland.....	0.8	2.3	3.5	4.5	10.8	23.2	0.6	1.6	0.6
San Francisco.....	0.8	2.0	2.8	4.6	13.6	26.3	0.3	0.8	0.1
Oakland.....	1.0	1.2	2.0	3.8	8.7	21.5	0.3	1.7	0.7
Salt Lake City.....	1.0	1.9	6.0	9.3	13.2	41.1	0.0	1.4	1.4
San Diego.....	1.3	1.0	1.6	7.9	17.0	10.8	1.8	0.0	1.2
Spokane.....	1.4	2.2	4.4	4.9	17.1	50.3	0.8	0.8	2.6
Denver.....	1.8	2.6	5.1	5.8	12.0	37.5	2.0	0.7	1.4

* Incomplete data.

In the East North Central group the rate has again increased to approximately the average for the five year period 1931-1935, not as high however as occurred in 1934. There is in the group but one city with a death rate in excess of 2.0 and, as previously indicated, most of these deaths occurred in a hospital in Columbus. While in 1935 there were five cities in this group with no death, there are but three such cities in 1936, South Bend, Evansville and Fort Wayne. Equally impressive

is the reduction in death rate in Evansville (4.7 in 1935, 0.0 in 1936). Nine cases with one death spoiled the admirable record of Grand Rapids, the source of infection being attributed to a bake shop. Cleveland reports that of nine deaths three occurred in the Cleveland State Hospital for the Insane (it should be noted that the health department of Cleveland has included these deaths as residents while in Columbus the health department has recorded nine deaths that occurred in a state hospital for the insane as among nonresidents). Chicago continues to have a very low rate. Milwaukee and Detroit, although low, have not maintained the lower rates of 1935, in which year there was no death recorded in Milwaukee.

The six cities in the East South Central group, while having a lower rate (3.35) than in 1935 (3.94), and lower than the five year average for 1931-1935 (4.81),

TABLE 9.—*Death Rates from Typhoid in 1936*

Honor Roll: No Typhoid Death (Eighteen Cities)		
Bridgeport	Utica	Evansville
Somerville	Syracuse	Fort Wayne
Waterbury	Scranton	Chattanooga
Worcester	Tampa	Minneapolis
Cambridge	Norfolk	Duluth
Springfield	South Bend	Salt Lake City
First Rank: from 0.1 to 1.9 Deaths per Hundred Thousand (Fifty-Seven Cities)		
Boston..... 0.1*	Pittsburgh..... 0.7†	Canton..... 1.0
Newark..... 0.2	St. Paul..... 0.7	Cleveland..... 1.0
Buffalo..... 0.3	Tulsa..... 0.7	Toledo..... 1.0†
Milwaukee..... 0.3	Providence..... 0.8	Los Angeles..... 1.0†
Chicago..... 0.3	Elizabeth..... 0.8	Youngstown..... 1.1†
San Francisco..... 0.3†	Erie..... 0.8*	New Haven..... 1.2
Oakland..... 0.3	Trenton..... 0.8*	Flint..... 1.2
New York..... 0.4	Camden..... 0.8	Jacksonville..... 1.3
Hartford..... 0.5	Akron..... 0.8†	Louisville..... 1.4†
Detroit..... 0.5	Indianapolis..... 0.8†	Albany..... 1.5
Kansas City, Mo..... 0.5	St. Louis..... 0.8	Dallas..... 1.5*
Seattle..... 0.5	Spokane..... 0.8	Washington..... 1.6
Jersey City..... 0.6*	Fall River..... 0.9	Peoria..... 1.7*
Rochester..... 0.6†	Baltimore..... 0.9	New Bedford..... 1.8
Grand Rapids..... 0.6*	Wilmington..... 0.9	Reading..... 1.8
Long Beach..... 0.6*	Omaha..... 0.9*	Dayton..... 1.8†
Portland..... 0.6	Tacoma..... 0.9	San Diego..... 1.8†
Paterson..... 0.7	Lynn..... 1.0	Cincinnati..... 1.9†
Philadelphia..... 0.7	Lowell..... 1.0	Wichita..... 1.9
Second Rank: from 2.0 to 4.9 (Fifteen Cities)		
Denver..... 2.0	Miami..... 3.1†	Knoxville..... 4.1
Kansas City, Kan..... 2.3	Atlanta..... 3.2†	Oklahoma City..... 4.3
Richmond..... 2.7	Fort Worth..... 3.3	Nashville..... 4.4†
San Antonio..... 2.7	Columbus..... 3.7*	Memphis..... 4.7†
Des Moines..... 2.8	Houston..... 3.8	Yonkers..... 4.8
Third Rank: from 5.0 to 6.8 (Three Cities)		
Birmingham..... 5.0	New Orleans..... 6.5†	El Paso..... 6.8†

* All typhoid deaths reported were stated to be among nonresidents.
† One third or more of the reported typhoid deaths were stated to be among nonresidents.

continues as a group to rank second only to the West South Central group, which has the highest rate (3.99 in 1936). The actual number of typhoid deaths in this group dropped from forty-nine in 1935 to forty-three in 1936. Chattanooga reported no death. With the exception of Chattanooga and Louisville, all the cities had a death rate in excess of four. Louisville reports that of five deaths two occurred among nonresidents; of thirteen deaths in Birmingham, three were among nonresidents; of seven deaths in Nashville, six were among nonresidents; of thirteen deaths in Memphis, five were among nonresidents. This clearly indicates that the cities in this group are serving as hospital centers for the surrounding areas where typhoid continues to be prevalent. The freedom from typhoid in Chattanooga is in striking contrast to the high death rates of previous years.

The West North Central group reports substantially the same number of deaths in the past two years (twenty-two in 1936, twenty-three in 1935). The rate of 0.79 marks a new low for the group. Minneapolis

and Duluth report no death. After two consecutive years with no death, Wichita reports two resident deaths. Des Moines, with a rate slightly in excess of that in 1935 but materially lower than that of 1934, continues to rank highest.

The eight cities in the West South Central group, after showing a marked improvement in their rate in 1935, have increased their rate slightly in 1936, there being seventy-nine deaths in 1936, seventy-four in 1935. The group rate of 3.99 is the highest for any group but is materially lower than the rate of 5.43 for this group in 1934 and the rate of 5.36 for the quinquennial average of 1931-1935. There were but two cities in this group with a rate less than 2.0 (Tulsa with 0.7 and Dallas 1.5). There were two cities with a rate in excess of 6 (El Paso with 6.8 and New Orleans 6.5). Of the four deaths reported for Dallas, all are stated to have occurred among nonresidents. The high percentage of nonresident deaths in El Paso and New Orleans has already been referred to. No reference is made by the health officer in any instance to an unusual prevalence or outbreak of typhoid. It is quite likely, as in the instance of the East South Central states, that the urban communities provide hospital facilities for

cities with a rate in excess of 5.0, as compared with seven in 1935 and nine in 1934. Comparing the cities by groups (table 12) it will be observed that the high rates are in the Southern states, the medium rates in the Pacific and Northern states, and the lowest rates on the North Atlantic Seaboard and in New England.

TABLE 11.—Total Typhoid Rate for Seventy-Eight Cities, 1910-1936 *

	Population	Typhoid Deaths	Typhoid Death Rate per 100,000
1910.....	22,573,435	4,637	20.54
1911.....	23,211,341	3,950	17.02
1912.....	23,535,309	3,132	13.14
1913.....	24,457,989	3,255	13.43
1914.....	25,091,112	2,781	11.05
1915.....	25,713,346	2,434	9.47
1916.....	26,237,550	2,191	8.34
1917.....	26,865,408	2,016	7.50
1918.....	27,086,606†	1,824‡	6.73
1919.....	27,735,083†	1,151‡	4.15
1920.....	28,244,878	1,088	3.85
1921.....	28,830,062	1,141	3.95
1922.....	29,473,246	963	3.26
1923.....	30,057,430	950	3.16
1924.....	30,701,614	943	3.07
1925.....	31,315,508	1,079	3.44
1926.....	31,929,782	907	2.84
1927.....	32,543,966	648	1.99
1928.....	33,158,150	628	1.89
1929.....	33,772,334	537	1.59
1930.....	34,386,717	554	1.61
1931.....	35,137,015	563	1.60
1932.....	35,691,815	442	1.24
1933.....	35,691,815	423	1.18
1934.....	35,401,715	413	1.17
1935.....	35,401,715	348	0.98†
1936.....	36,216,404	342	0.94§

* The following fifteen cities are omitted from this table because data for the full period are not available: Canton, Chattanooga, Dallas, Fort Wayne, Jacksonville, Knoxville, Long Beach, Miami, Oklahoma City, South Bend, Tampa, Tulsa, Utica, Wichita, Wilmington.

† Data for Fort Worth lacking.
‡ The rate for ninety-three cities in 1935 was 1.03 (total population 37,437,812, typhoid deaths 355), whereas in 1930 it was 1.64, and in 1923 and 1924 it was 1.24 and 1.25, respectively. The 1931-1935 average for the ninety-three cities is 1.31.

§ Rate for ninety-three cities in 1936 was 0.96 (total population 38,349,694, typhoid deaths 371).

LOWEST RECORD REACHED

For the seventy-eight cities for which complete data are available since 1910, there occurred 342 deaths from typhoid in 1936, which is the lowest of record (348 in 1935). The rate for this group of cities is for the second consecutive year less than 1.0. The rate for the ninety-three cities studied in 1936 is also slightly

TABLE 12.—Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	Population	Typhoid Deaths		Typhoid Death Rates						
		1936	1935	1936	1935	1934	1935	1936	1935	1936
New England.....	2,639,017	11	13	0.42	0.49	0.53	0.70	1.31	2.48	
Middle Atlantic.....	12,291,016	74	72	0.56	0.55	0.63	0.69	1.40	2.97	
South Atlantic.....	2,585,257	40	61	1.55	2.38	2.11	2.70	4.50	7.01*	
East North Central..	9,705,898	70	58	0.72	0.60	0.91	0.75	1.29†	2.32†	
East South Central..	1,283,422	42	49	3.25	3.94	4.91	4.81	8.31	13.00	
West North Central..	2,773,847	22	23	0.79	0.85	1.48	1.24	1.85	3.43	
West South Central..	1,979,575	79	74	3.99	3.82	5.43	5.36	7.32‡	13.03§	
Mountain and Pacific	3,997,161	32	35	0.80	0.88	0.75	0.83	1.80	2.21	

* Lacks data for Jacksonville and Miami.

† Data for South Bend for 1935-1929 are not available.

‡ Lacks data for Oklahoma City in 1926.

§ Lacks data for Oklahoma City.

TABLE 10.—Number of Cities with Various Typhoid Death Rates

	No. of Cities	10.0 and Over	5.0 to 9.9	2.0 to 4.9	1.0 to 1.9	0.1 to 0.9	0.0
1906-1910	77	75	2	0	0	0	0
1911-1915	79	58	19	2	0	0	0
1916-1920	84	21	32	30	0	0	0
1921-1925	89	12	17	48	12	0	0
1926-1930	92	3	10	30	37	12	0
1931-1935	93	0	6	17	28	42	0
1936	93	2	6	30	23	22	10
1931	93	2	6	23	28	22	12
1932	93	1	7	13	29	29	14
1933	93	0	7	18	19	34	16
1934	93	0	9	11	27	27	23
1935	93	0	7	15	18	29	24
1936	93	0	3	15	21	36	18

the surrounding areas. Tulsa continues to have the lowest rate in the group, as it has had every year beginning with 1930.

The cities in the Mountain and Pacific states had a reduction in the rate below that of 1935, but not quite as low as 1934. Salt Lake City led the list with no death. There were but two cities with a rate in excess of 1 (San Diego and Denver) and there was no city with a rate in excess of 2. Denver has the unenviable distinction of having the highest rate. Among thirteen deaths occurring in Los Angeles, six were among nonresidents. With two deaths in San Francisco, one was of a nonresident. With this correction for residence, both of the large California cities can boast of an enviable record. Tacoma, after two successive years of freedom from typhoid (the third in its history), reports one resident death.

THE HONOR ROLL

While in 1935 there were twenty-four cities on the honor roll with no deaths from typhoid, there were only eighteen in 1936. Among the cities with a rate from 0.1 to 0.9, the number increased from twenty-nine to thirty-six. This apparently shows the influence of one or two chance deaths from this disease. Bridgeport, Cambridge, Fort Wayne, Scranton, Somerville and Springfield were on the honor roll in both 1935 and 1936.

There were only eighteen cities in 1936 with rates of 2.0 or over, in contrast with twenty-two such cities in 1935 and twenty in 1934. In 1936 there were but three

below 1.0 (0.96). This statistical study shows a downward trend in the death rate from typhoid in the large cities of the United States. As a cause of death this disease is of little consequence in many parts of the country. It is believed that in many urban areas, especially in the South, the prevalence of typhoid in surrounding rural areas materially handicaps the large cities in attaining more promptly a lower death rate from typhoid.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
FRANKLIN C. BING, Secretary.

THE NUTRITIONAL SIGNIFICANCE OF THE CURD TENSION OF MILK

II. The Relation of Curd Tension to the Digestibility of Milk

The early experiments of Brennemann¹ provided a vivid demonstration of the different curd qualities of raw and treated milks. Since that time curd tension has become generally recognized as an important factor in the digestibility of milk in the stomach. It has been thought that the formation of a soft, friable casein clot is advantageous because the digestive juices, which are supposed to act only on the surface of casein particles, could more readily and quickly attack porous or finely divided material. A recent report of the Council² summarized the large number of methods of modifying the curd texture of milk. The present report aims to evaluate the nutritional significance of soft curd milks, particularly in the feeding of infants, in the light of available experimental and clinical evidence.

EXPERIMENTAL EVIDENCE

Rate of Digestion in Vitro.—Efforts to relate curd tension to the rate of peptic digestion in vitro have shown striking differences in favor of soft curds. Doan and Welch,³ for example, used untreated cow's milk and found that the milk which produced softer curds was more readily digested under laboratory conditions, especially if the digestion mixture was agitated. They studied also the effects of varying the pH between 2 and 6 and found that increased acidity caused a greater acceleration of digestion in soft curd milk than in milk with higher curd tension. They observed that the digestion of hard curd milk (as measured by the increase in soluble nitrogen) progressed at a constant rate but that the digestion of soft curd milk was rapid at first and slower in the later stages. The slowing-up process was attributed in large measure to a reduction by digestion itself of the surface area remaining to be acted on by the digestive enzymes. From these clear-cut experiments it may be concluded that, other things being equal, the ability of milk to form a fine friable coagulum is a decided advantage in hastening the gastric digestion of casein. But of course artificial digestion experiments may not be a true representation of what takes place in the living organism. A review of the available biologic evidence suggests, indeed, that curd tension is important in the rate of digestion of casein but that other factors must also be considered.

Emptying Time of Stomach.—A number of investigators have studied the problem of soft curd milk by observing the emptying time of the stomach after the ingestion of different types of milk. Doan and Welch³ performed regurgitation experiments on three normal adults and concluded that natural soft curd milk leaves less residue in the stomach after a given interval than does milk having a high curd tension. They attributed the more rapid emptying to the lower casein and fat contents of the milk, as well as to the softer curd. Espe and Dye⁴ made use of dogs with Pavlov pouches and, assuming that the duration of secretion from the pouch after a milk meal was an index of the stay of the milk in the stomach, they likewise found a more rapid emptying time after soft curd milk had been ingested. Their conclusion that the effect is due to curd character may be open to criticism in the light of the observation of Hess, Koch and Sennewald⁵ that adult dogs normally fail to coagulate milk completely. Observations on calves and rats

killed at definite intervals after the ingestion of milk, however, have indicated that natural soft curd milk travels more rapidly through the alimentary tract.⁶ In Brennemann's^{1a} experiments boiled milk was found only in scant amounts in the human stomach after three hours, while raw milk was recovered in similar amounts after five hours.

In the light of the foregoing results it is difficult to interpret the observations of Ogilvie and Peden,⁷ who found no differences between raw and boiled milk in the rate of emptying of the stomach of infants as determined by the stomach tube, or in the amount of soluble nitrogen of the gastric contents. Their conclusions as to the rate of emptying are open to the criticism that the stomach tube is too small to withdraw large curds, which may be present. Studies in which barium sulfate and the fluoroscope were used for observing the rate of digestion of milk in from one to four adults indicated that evaporated milk and milk modified by the addition of citrate, alkali or barley water did not leave the stomach significantly quicker than ordinary milk.⁸

Schlutz and Fetter⁹ used the balloon method to follow gastric motility after milk meals in four children and concluded that acid milks leave the stomach earlier than either evaporated or untreated milks. The rate of digestion of acid milk mixtures must be considered not only from the standpoint of curd tension but also from the standpoint of reduced buffer capacity. Buffer substances, which in milk are represented chiefly by protein and phosphates, take up added acid and thus resist changes in pH . In order to effect a given small change in pH , approximately three times as much acid must be added to cow's milk as to breast milk. Marriott and Davidson¹⁰ determined the pH of the gastric contents at the height of digestion and found that a greater acidity is attained after the ingestion of human milk than of cow's milk. Marriott¹¹ suggested the addition of acid to compensate for the larger amounts of hydrochloric acid held by cow's milk and to bring the gastric contents to the approximate pH attained after the ingestion of human milk. Acid milk mixtures, therefore, might be expected to be digested more rapidly not only because of the lower curd tension but also because the gastric contents of the infant are more quickly brought into the range of acidity where the proteolytic enzymes of the gastric juice may act. Other observations on this subject will be discussed under the heading of clinical observations.

The determinations of soluble nitrogen by Schlutz and Fetter⁹ suggested that acid milks are more quickly digested than mixtures made from powdered milk or untreated milk. Hess, Koch and Sennewald⁵ believe that acid milks show a more rapid digestibility only in the early stages of digestion. These investigators determined free and total acidity and pH of the gastric contents at half hour intervals for two hours following the ingestion of modified milks by puppies. The pH of the gastric contents after one-half hour was found to depend largely on the acidity of the meal. After two hours the pH was the same, regardless of the acidity of the milk that was ingested.

CLINICAL OBSERVATIONS

The evidence on the importance of low curd tension in hastening the emptying time of the stomach is conflicting, but the general consensus is that soft curd milk is more rapidly digested in the stomach. The evidence from clinical studies of the value of soft curd milk is likewise conflicting. Superior qualities for natural soft curd milk as a routine and special food for infants have been claimed by Hill¹² and denied by Elias¹³ and

1. Brennemann, Joseph: (a) Boiled versus Raw Milk, J. A. M. A. 60: 575 (Feb. 22) 1913; (b) The Coagulation of Cow's Milk in the Human Stomach, Arch. Pediat. 24: 81 (Feb.) 1917.

2. The Nutritional Significance of the Curd Tension of Milk: I. The Production and Properties of "Soft Curd" Milks, J. A. M. A. 108: 2040 (June 12) 1937.

3. Doan, F. J., and Welch, R. C.: Soft-Curd Milk, Tech. Bull. 312, Pennsylvania Agr. Exper. Sta., 1934.

4. Espe, D. L., and Dye, J. A.: Effect of Curd Tension on the Digestibility of Milk, Am. J. Dis. Child. 43: 62 (Jan.) 1932.

5. Hess, J. H.; Koch, Elizabeth M., and Sennewald, Zella C.: Peptic Digestion of Cow's Milk: The Effect of Various Modifications Used in Infant Feeding, J. A. M. A. 87: 1360 (Oct. 23) 1926.

6. Washburn, R. M., and Jones, C. H.: Studies of the Value of Different Grades of Milk in Infant Feeding, Bull. 195, Vermont Agr. Exper. Sta., 1916. Doan and Welch³.

7. Ogilvie, Jesse W., and Peden, Olive D.: Gastric Digestion of Raw and Boiled Milk in Infants, Lancet 2: 76 (July 14) 1934.

8. Davidson, P. B.; Biguria, Fernando, and Guild, Ruth: The Use of Evaporated Milk in Digestive Disorders, Particularly Peptic Ulcer, J. Am. Dietet. A. 9: 478 (March) 1934. Maile, W. C. D., and Scott, K. J. L.: Further Observations on the "Digestibility" of Common Foodstuffs as Determined by Radiography, Lancet 1: 1500 (June 29) 1935.

9. Schlutz, F. W., and Fetter, Dorothy: Effect of Milk and Modified Milk on Gastric Contractions, Am. J. Dis. Child. 45: 480 (March) 1933.

10. Marriott, W. McK., and Davidson, L. T.: The Acidity of the Gastric Contents of Infants, Am. J. Dis. Child. 26: 542 (Dec.) 1923.

11. Marriott, W. McK.: The Artificial Feeding of Athreptic Infants, J. A. M. A. 73: 1173 (Oct. 18) 1919.

12. Hill, R. L.: The Physical Curd Character of Milk and Its Relationship to the Digestibility and Food Value of Milk for Infants, Bull. 207, Utah Agr. Exper. Sta., 1928; Soft-Curd Milk: Nature's Food for Infants, Arch. Pediat. 48: 417 (July) 1931.

13. Elias, H. L.: Soft Curd Milk, Am. J. Dis. Child. 44: 296 (Aug.) 1932.

by Morris and Richardson.¹⁴ Cow's milk modified by the base exchange method, which is therefore lower in calcium, has been reported by Rogers, Pavey and Williams¹⁵ as suitable for the complementary feeding of infants. Evaporated,¹⁶ sweetened condensed¹⁷ and powdered milks¹⁸—all of which usually form soft, flocculent curds—have been used with clinical success in the feeding of normal infants. The acid milks have enjoyed considerable popularity, particularly during the last decade. The agents employed have included lactic acid¹⁹ and sauerkraut juice,²⁰ hydrochloric acid,²¹ citric acid²² and citrus fruit juices²³ and vinegar.²⁴ Milks so modified have been reported to be suitable for the feeding of many infants, and valuable in the feeding of babies born prematurely and those with digestive disorders. Although acid milks had long been used empirically and the high buffer value of cow's milk was reported in the last century, it has been the studies of Marriott which in recent years have emphasized the desirability of adding acid to cow's milk. Brennemann,¹⁶ who as a result of his earlier experiments interpreted the value of acid milks in terms of curd texture, undertook a crucial clinical experiment to evaluate the rôle of the acid. He and his associates were unable to detect any difference between two groups of fifty infants fed diets identical except for lactic acid. Evaporated milk was used for both groups. Brennemann was forced to the conclusion that curd texture, and not acidity, is of prime importance and that the value of acid milks lies in the modification of the curd. This conclusion has been amply supported by the work of Lynch¹⁸ and of Jeans and Stearns.²⁵ Lynch observed identical rates of growth over a period of six months in two groups of infants fed powdered milk preparations with or without added citric acid. He found that less acid was needed for dried milk than for fresh milk and he expressed doubt as to the need for any acid at all in preparations made from powdered milk. In the experiments of Jeans and Stearns, acid milks prepared with lactic and citric acids, milk coagulated with a rennin-pepsin preparation, and evaporated milk proved equally effective in promoting good growth and in retentions of nitrogen, calcium and phosphorus.

14. Morris, Myrl, and Richardson, G. A.: The Production and Use of Soft Curd Milk, *J. Pediat.* 3: 449 (Sept.) 1933.

15. Rogers, Andrews; Pavey, C. W., and Williams, Anita: Complementary Feeding of the New-Born, *Ohio State M. J.* 30: 441 (July) 1934.

16. Brennemann, Joseph: The Curd and the Buffer in Infant Feeding, *J. A. M. A.* 92: 364 (Feb. 2) 1929. Marriott, W. McK., and Schoenthal, Ludwig: An Experimental Study of the Use of Unsweetened Evaporated Milk for the Preparation of Infant Feeding Formulas, *Arch. Pediat.* 46: 135 (March) 1929. Poole, M. W., and Cooley, T. B.: Infantile Diarrhea, *Am. J. Dis. Child.* 43: 1101 (May) 1932; The Care of Premature Infants, *J. Pediat.* 1: 16 (July) 1932. Sauer, Louis: A Simple Inexpensive Stock Formula for Young Infants, *ibid.* 1: 194 (Aug.) 1932. Dennet, R. H., and Craig, J. D.: A Comparative Study of Infant Foods, *M. J. & Rec.* 136: 133 (Aug. 17) 1932. Kositz, Lillian: A Comparative Study on the Use of Unsweetened Evaporated Milk and Bottled Cow's Milk in Infant Feeding, *J. Pediat.* 1: 426 (Oct.) 1932. Quillian, Warren: Evaporated Milk in Infant Feeding: A Clinical Study of 340 Cases, *J. Florida M. A.* 20: 291 (Jan.) 1934. Williams, C. T., and Kastler, A. O.: A Comparison of the Nutritional and Growth Values of Certain Infant Foods, *J. Pediat.* 4: 454 (April) 1934.

17. De Sanctis, A. G., and Craig, J. D.: A Critical Clinical Study of Concentrated and Dried Infant Foods, *Arch. Pediat.* 48: 439 (July) 1931. Evans, D. P.: New Method for Using Cane Sugar in Infant Feeding: A Clinical Report, *J. M. Soc. New Jersey* 29: 856 (Nov.) 1932.

18. Ashton, L. O.; Stringfield, O. L., and Martin, C. W.: The Study of the Routine Use of Powdered Whole Milk in Infant Feeding, *Arch. Pediat.* 46: 75 (Feb.) 1929. Abt, A. F., and Finegold, B. F.: The Use of Powdered Milk and Milk Derivatives in the Concentration of Infant Foods, *ibid.* 47: 603 (Oct.) 1930. Amick, A. E.: A Clinical Study of Powdered Whole Milk in Infant Feeding, *West Virginia M. J.* 28: 196 (May) 1932. Lynch, H. D.: Powdered Citric Acid Milk in Infant Feeding, *Arch. Pediat.* 49: 763 (Nov.) 1932. McCord, M. M.: A Summary of Various Types of Infants Fed on Dry Milk Extending Over a Period of Fourteen Years, *ibid.* 50: 873 (Dec.) 1933. Dennet and Craig.¹⁹

19. Marriott, W. McK., and Davidson, L. T.: Acidified Whole Milk as a Routine Infant Food, *J. A. M. A.* 81: 2007 (Dec. 15) 1923. Gleich, Morris: The Use of Lactic Acid Milk in Feeding Premature Infants, *M. J. & Rec.* 13: 153 (Aug. 7) 1929. Smyth, F. S., and Hurwitz, Samuel: Buffered Lactic Acid Milk in Infant Feeding, *J. A. M. A.* 105: 789 (Sept. 7) 1935. Marriott, W. McK., and Williams, C. T.: 20. Rice, C. V.: Sauerkraut Juice for the Acidification of Evaporated Milk in Infant Feeding, *Arch. Pediat.* 51: 39 (June) 1934.

21. Faber, H. K.: Hydrochloric Acid Milk in Infant Feeding, *Am. J. Dis. Child.* 26: 401 (Nov.) 1923.

22. Gounce, J. E., Jr., and Templeton, H. L.: Citric Acid Milk in Infant Feeding, *Am. J. Dis. Child.* 59: 265 (Feb.) 1930.

23. Hess, A. F., and Matzner, M. J.: The Value of Milk Acidified with Lemon Juice, *J. A. M. A.* 82: 1604 (May 17) 1924. Reiss, Oscar: Lemon Juice Evaporated Milk in Infant Feeding, *Arch. Pediat.* 49: 170 (March) 1932.

24. Dunham, B. S.: Acidification of Milk with Vinegar (Acetic Acid) in Infant Feeding, *Am. J. Dis. Child.* 29: 200 (Feb.) 1925.

25. Jeans, P. C., and Stearns, Genevieve: Factors Possibly Influencing the Retention of Calcium, Phosphorus and Nitrogen by Infants Given Whole Milk Feedings: I. The Curdling Agent, *J. Pediat.* 8: 403 (April) 1936.

As judged by growth, general condition,²⁶ and retention²⁷ of nitrogen, calcium and phosphorus it may be concluded that, in general, milks which form soft curds are well tolerated and utilized by infants and children.

SUMMARY

There is evidence that a variety of milk preparations which yield soft curds are well tolerated and well utilized by infants, children and older persons. In general, milk that has a low curd tension as determined by appropriate laboratory methods leaves the stomach more quickly than milk that does not have this property. Such digestion as takes place in the stomach is more quickly accomplished when the curd is soft. The evidence is meager, however, that any soft curd milks are "better digested" or more completely digested than ordinary boiled milk.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

STOKELY'S STRAINED BEEF BROTH

Manufacturer.—Stokely Brothers & Company, Indianapolis.

Description.—Canned, strained beef broth, slightly seasoned with salt.

Manufacture.—Fresh selected government inspected beef is cooked in a definite amount of water for six hours at 100 C. The beef is removed and the broth is strained, heated to 100 C., slightly seasoned with salt and filled into enamel-lined cans, which are sealed and processed for sixty minutes at 116 C.

Analysis (submitted by manufacturer).—Moisture 98.2%, total solids 1.8%, ash 1.1%, sodium chloride (NaCl) 0.8%, fat (ether extract) negligible, protein (N \times 6.25) 0.8%, crude fiber none, reducing sugar as dextrose 0.1%, sucrose 0.1%, carbohydrates other than crude fiber (by difference) none, p_{H} 6.19, alkalinity of ash, cc. normal acid/Gm. 2.25.

Calories.—0.03 per gram; 0.9 per ounce.

Claims of Manufacturer.—Specially prepared strained beef broth for infant and for invalid feeding.

PILLSBURY'S BRAND FARINA

Manufacturer.—Pillsbury Flour Mills Company, Minneapolis.

Description.—Granular wheat endosperm or farina, practically free of germ and bran.

Manufacture.—Wheat is cleaned, washed, scoured and crushed and the bran and germ are separated from the flour middlings (endosperm) by the usual milling methods. Endosperm graded to uniform granulation is heated to destroy any insect infestation and packed in cartons.

Analysis (submitted by manufacturer).—Moisture 8.7%; ash 0.4%, fat (ether extraction method) 0.8%, protein (N \times 5.7) 10.5%, reducing sugars as dextrose 0.2%, sucrose 1.3%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 79.2%.

Calories.—3.7 per gram; 105 per ounce.

MORRIS SUPREME BRAND EVAPORATED MILK

Distributor.—Morris & Company, Division of Armour & Company, Chicago.

Packer.—Armour & Company, Chicago.

Description.—Canned, unsweetened, sterilized, evaporated milk, the same as Armour's Brand Evaporated Milk (THE JOURNAL, June 16, 1934, p. 2025).

26. Evans.¹⁷

27. Willard, Alice C., and Blunt, Katherine: A Comparison of Evaporated with Pasteurized Milk as a Source of Calcium, Phosphorus and Nitrogen, *J. Biol. Chem.* 75: 251 (Oct.) 1927. Jeans, P. C., and Stearns, Genevieve: Growth and Retention of Calcium, Phosphorus and Nitrogen of Infants Fed Evaporated Milk, *Am. J. Dis. Child.* 46: 69 (July) 1933. Morris, Noah, and Graham, Stanley: Nutritive Value of Boiled and Raw Milk in Infant Feeding, *Lancet* 2: 1314 (Dec. 9) 1933. Harrison, H. E.: The Retentions of Nitrogen, Calcium and Phosphorus of Infants Fed Sweetened Condensed Milk, *J. Pediat.* 8: 415 (April) 1936.

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SATURDAY, JUNE 19, 1937

THE ATLANTIC CITY SESSION

After all the superlatives are exhausted, the Atlantic City session arises to demand additional ones. Never in the history of medicine has there been such an assemblage of physicians, and never before such a wealth of material for their interest and instruction. Some 9,764 doctors registered their attendance in Atlantic City, 1,295 more than registered at the great session of 1935, the high mark up to the present. Moreover, the session in Atlantic City in 1935 was graced by the presence of 303 visitors from Canada who did not contribute to the mark of the present occasion. Every hotel on the boardwalk was filled to capacity and most of the visitors remained throughout the entire week.

In the House of Delegates, affairs of science and of government commanded the attention to such an extent that several extra sessions of the representative body were necessary to complete the tasks before it. Every physician in the United States should read the minutes of this meeting in order that he may personally be more definitely aware of the serious matters which concerned the delegates. The significant features involved resolutions leading toward a change in the nature of the practice of medicine, a decision by the House of Delegates to cooperate with the government in working out plans for the care of the indigent sick on direct request from the government, and a personal visit to the House of Delegates from Senator James Hamilton Lewis of Illinois, bringing an authorized message from the President.

The Committee on Contraception presented a simple, dignified report of its deliberations, which was unanimously adopted by the House of Delegates. This places on the various councils the responsibility for the examination of products used in contraception. It recognizes also the necessity for teaching the scientific aspects of both fertility and sterility. It recommends that doctors inform themselves concerning their legal rights and responsibilities in relationship to the pre-

vention of conception, and it suggests that all such practice be in regularly licensed clinics under medical control.

Two definitely new procedures were also adopted by the House of Delegates and are mentioned here since they will definitely affect the work of the Association. A resolution was passed recommending the development of a distinguished service medal with citation to be presented each year at the time of the annual session to a physician who has rendered such service for the advancement of the art and science of medicine. The House of Delegates also adopted a resolution providing for the selection of a place of meeting three years beyond the time of the selection. There are many reasons for this change. Most significant is the fact that the meetings of the Association have grown so large that there are but few cities in the United States which can accommodate them satisfactorily. These are cities which contain large auditoriums capable of housing suitably the technical and scientific exhibits and also of providing acceptable halls for the meeting places of the sections. Since the number of such cities is limited and since the demand on them is great, it is necessary to make early choice in order to secure a time that will be satisfactory to the great numbers of physicians who now attend the annual session.

The reports of the officers and trustees of the Association, as well as those of the several councils and bureaus, were highly commended by the House of Delegates. New resolutions recommended cooperation in securing drivers' licenses in various states so as to aid in the prevention of fatalities from motor accidents; encouragement of investigation of teaching of osteopathy by an unbiased, nonpartisan source; recommendation to the Social Security Board that examinations for blindness be carried out only by doctors of medicine, competent in diagnosis and treatment of diseases of the eye; encouragement in the use of motion pictures in public and in medical education and for reviews and censorship of films used for advertising promotion; recommendation to the Council on Medical Education and Hospitals for more extended inspection of hospitals, and also resolutions on many other subjects, which will become apparent in the minutes of the session.

The General Scientific Meetings commanded tremendous audiences, and the motion picture clinic on syphilis was seen and heard by at least 7,500 visitors. More than 300 papers were read in the scientific sessions. The symposiums on neuropsychiatry, papers on the use of sulfanilamide, and meetings of many of the sections attracted capacity audiences.

The entertainment proffered through the Woman's Auxiliary and through the Local Committee on Arrangements was exceptional. The dinner to the House of Delegates presented a galaxy of famous figures in the field of medicine, and excellent entertainment was interspersed among their addresses. The

Opening General Meeting attracted an audience of between six and seven thousand. The addresses by Drs. Heyd and Upham were significant. The singing by the Madrigal Singers from Philadelphia elicited tremendous applause. So numerous were the visitors to the President's reception that hours were required for the passing of those who wished to greet the officers personally in the line of reception.

A veritable deluge of representatives of the press and of the various illustrated magazines descended on Atlantic City several days before the session and worked busily throughout. All the New York and Philadelphia newspapers, as well as the *Detroit Free Press*, the *Washington Star*, the *Chicago Tribune* and many others sent individual correspondents. Four men represented the Associated Press and there were others from all the important press services, including the five reporters who shared the Pulitzer prize in journalism this year. *Time*, *News Week* and *Life* were especially represented.

The Scientific Exhibit has come to represent what is probably the most noteworthy of the many extraordinary features of the annual session of the American Medical Association. Innumerable physicians who come to the meeting spend their entire time during the week visiting these exhibits. The collections in this year's session were beyond any displays ever made anywhere before. In scientific value, appearance, attendance, quantity, arrangement and in every other manner they reached the heights. So great was the attendance at the exhibits that it was again necessary that they be held open until 4 o'clock on Friday afternoon. All that has been said of the Scientific Exhibit applies equally to the Technical Exposition. Manufacturers have learned more and more the importance of making the exposition educational. So vast a number of physicians were constantly in and out of the attractive booths that the attendants at the exhibits found themselves well nigh physically and mentally exhausted before the session was completed. Few physicians realize how many thousands of persons are involved in employment in these sessions.

It is impossible to thank sufficiently the Local Committee on Arrangements. Every physician was promptly supplied with suitable quarters. The facilities for every purpose more than met the needs of the occasion. Sunshine prevailed, tempered by cooling winds. An unusual touch was a final word of farewell and congratulations announced over the loud speakers in railroad stations to various notables as they departed from the convention city. Some may have thought that the tremendous attendance in 1935 was due to the unusual character of the occasion and the visiting of our Canadian colleagues. No doubt, that played a large part. However, the vast assemblage of this year must be largely credited to the appeal of Atlantic City as a suitable place for such a scientific session.

THE TRANSPORT OF CARBON DIOXIDE BY THE BLOOD

The mode of transport of carbon dioxide by the blood, closely linked with the acid-base balance, has been much studied during the past two decades, especially in America, Great Britain and Denmark. Noteworthy discoveries have made this one of the most fascinating chapters in modern physiology. Oxygen, a neutral gas, and carbon dioxide, which forms carbonic acid when dissolved in water, are exchanged for each other in the lungs and in the tissues; nevertheless the organism maintains the degree of alkalinity of the plasma at an almost constant level. L. J. Henderson¹ made the brilliant deduction, later abundantly confirmed, that hemoglobin when combined with oxygen is a stronger acid than when in the reduced state. This variability in the acid strength of hemoglobin, he concluded, is the chief factor in preventing the plasma from becoming more alkaline in the lungs and acid in the tissues. In the latter case, since production of carbon dioxide under ordinary conditions is proportional to oxygen consumption, the mechanism is peculiarly adapted to meeting the conditions that arise locally in various tissues under varying conditions of activity.

Attention was then directed toward the manner in which the effects of reactions taking place in the red blood cells are transmitted to the plasma. Van Slyke and his co-workers² found that a great part of the carbon dioxide entering the blood is at once taken up by the red cells and converted to bicarbonate, a considerable part of which is then exchanged for chloride from the plasma, the acid-base balance in the plasma being thus maintained. The elucidation of these mechanisms, with the first comprehensive description, both qualitative and quantitative, of the equilibria between red cells and plasma constituted a major step forward.

Henriques,³ turning his attention to the dynamics of these processes, found that the time spent by the blood in the capillaries of the tissues and lungs—about one second as an average—is too short for the unaided attainment of such equilibria as had been studied. This is especially true of the formation of carbonic acid from the combination of carbon dioxide with water and of the reverse process, the dehydration of carbonic acid to gaseous carbon dioxide, the latter occurring principally in the lungs. This led to the discovery of a catalyst, first purified by Meldrum and Roughton⁴ and named by them "carbonic anhydrase." This catalyst, which is present in the red cells but not in the plasma,

1. Henderson, L. J.: The Equilibrium Between Oxygen and Carbonic Acid in the Blood, *J. Biol. Chem.* **41**:401 (March) 1920; *Blood: A Study in General Physiology*, New Haven, Yale University Press, 1928.

2. Van Slyke, D. D.; Wu, Hsien, and McLean, F. C.: Studies of Gas and Electrolyte Equilibria in the Blood: V. Factors Controlling the Electrolyte and Water Distribution in the Blood, *J. Biol. Chem.* **56**:765 (July) 1923. Peters, J. P., and Van Slyke, D. D.: *Quantitative Clinical Chemistry*, vol. I, Interpretations, Baltimore, Williams & Wilkins Company, 1931.

3. Henriques, O. M.: Die Bindungsweise des Kohlendioxids im Blut: I. Ueber die Geschwindigkeiten der Anhydrisierung bzw. der Hydratisierung der Kohlensäurekomponenten im Blut, *Biochem. Ztschr.* **200**:1, 1928; Ueber Carblhaemoglobin, *Ergebn. d. Physiol.* **25**:625, 1929.

4. Meldrum, N. U., and Roughton, F. J. W.: Carbonic Anhydrase: Its Preparation and Properties, *J. Physiol.* **80**:113 (Dec. 5) 1933.

has the property of enormously accelerating the reaction between carbon dioxide and water in both directions and is of great physiologic significance in the dynamics of carbon dioxide transport.

A further consequence of the pioneer work of Henriques was the demonstration of a direct combination between hemoglobin and carbon dioxide in the form of a "carbamino" compound, extensively investigated by Roughton and his co-workers⁵ and others. Thus to the three previously known forms of carbon dioxide in the blood (dissolved carbon dioxide, carbonic acid and bicarbonate) is added a fourth, called "hemoglobin carbamate" by Stadie and O'Brien,⁶ again of great physiologic significance. As Ferguson⁷ shows, this discovery does not invalidate the importance of the variability in the acid strength of hemoglobin, as discovered by Henderson, but rather extends and clarifies its significance.

Both the newer and the older discoveries have been consolidated by Stadie and O'Brien,⁸ who have been able by the application of the fundamental law of mass action to reduce at least the chief elements in the behavior of carbon dioxide in the blood to quantitative terms and to evaluate the part played by each of the processes concerned in an extraordinarily efficient mechanism for transporting this substance from the tissues to the lungs with minimal changes in the degree of alkalinity of the blood. It emerges more clearly than ever before that hemoglobin, by virtue of its peculiar properties, accounts directly and indirectly for the transport of approximately 90 per cent of the carbon dioxide carried from the tissues to the lungs. That the mechanisms involved in the transport of oxygen and of carbon dioxide, although differing radically in character, are closely interrelated has been recognized since the demonstration⁸ of the influence of oxygen and carbon dioxide on the behavior of each other in the blood. From the newer knowledge there is a clearer definition of the manner in which oxygen in the lungs helps to "pump" carbon dioxide out of the blood and in which carbon dioxide in the tissues helps to "pump" oxygen from the blood, both processes being vital to the rapid exchanges taking place during the short stay of the blood in the capillaries.

Many further details remain to be added. Nevertheless the successive discovery of the variable acid strength of hemoglobin, of the equilibria between red cells and plasma, of carbonic anhydrase and of hemoglobin carbamate, and the elucidation of their physiologic significance are accomplishments that constitute a triumph for modern physiology.

5. Roughton, F. J. W.: *Carbon Dioxide Transport by the Blood*, Physiol. Rev. 15:241 (April) 1935.

6. Stadie, W. C., and O'Brien, Helen: The Carbamate Equilibrium: II. The Equilibrium of Oxyhemoglobin and Reduced Hemoglobin, J. Biol. Chem. 117:439 (Feb.) 1937.

7. Ferguson, J. K. W.: Carbamino Compounds of CO₂ with Human Hemoglobin and Their Role in the Transport of CO₂, J. Physiol. 88:40 (Oct.) 1936.

8. Bohr, C.; Hasselbalch, K., and Krogh, A.: Ueber einen in biologischer Beziehung wichtigen Einfluss den die Kohlensäurespannung des Blutes auf dessen Sauerstoffbindung übt, Skand. arch. f. Physiol. 16:402, 1907. Christiansen, J.; Douglas, C. G., and Haldane, J. S.: The Absorption and Dissociation of Carbon Dioxide by Human Blood, J. Physiol. 48:244, 1914.

BREAST MILK AND LYSOZYME

In large institutions there are frequently shortages in the supply of breast milk owing to variations in supply and demand. At the New York Foundling Hospital, Scheuer and Duncan¹ have attempted to solve this problem by pasteurizing breast milk in ordinary nursing bottles at 175 F. for thirty minutes on three successive days. The bottles, stoppered with sterile corks, are sealed and stored in a refrigerator at from 38 to 52 F. The milk has been found to remain sterile for as long as two years. These investigators consider it a satisfactory substitute for fresh breast milk and have found also that the fecal flora of infants thus fed is approximately that of infants given the fresh breast milk.

Other apparently important factors have been discussed by other investigators. Thus in 1931 Rosenthal and Lieberman² found a lytic principle in the stools of nurslings which was identified as lysozyme, a substance previously discovered in various human and animal tissues by Fleming,³ which had "properties akin to ferments." It was absent from cow's milk, the common milk formulas, and the stools of artificially fed infants but was found in the stools of breast-fed babies after the fourth day. Its characteristic property is the dissolution of live bacteria in culture; it inhibits the growth of *Bacillus coli* at 37 C. and lyses it at 56 C. It was found relatively thermolabile and tended to stabilize the gram-positive intestinal flora of nurslings.

Recently, Blatt and Kessler⁴ made bacterial counts on plate cultures of expressed human milk and determined what they called the "lytic index" of the various samples. The milk was collected by aseptic technic and was refrigerated at from 9 to 12 C. The samples collected by manual expression of the breasts had a lower initial bacterial count than those collected by means of a pump, whether hand or electrically operated, and the lytic index was also higher. This difference is apparently due to the large area of breast tissue bathed by the expressed milk when the electric pump is used, the milk being thus exposed to contamination. The low initial count could be maintained for as long as seventy-two hours when the milk was kept at a low temperature. *Staphylococcus albus* was the predominating organism. Boiling reduced the lytic action greatly, and repeated boiling caused complete inactivation. Raw breast milk was fed to premature infants on the theory that implantation of the gram-positive bacteria normally present in the stools of breast-fed infants might be accomplished. No diarrhea developed in the children thus fed. It is thus clear that all the factors relating to breast milk are not even yet wholly understood.

1. Scheuer, Lewis A., and Duncan, Jessie E.: A Method of Preserving Breast Milk, Am. J. Dis. Child. 51:249 (Feb.) 1936.

2. Rosenthal, Lazar, and Lieberman, Hyman: J. Infect. Dis. 48:226 (Feb.) 1931.

3. Fleming, A.: Proc. Roy. Soc. London, s. B 93:306, 1922.

4. Blatt, Maurice L., and Kessler, Helen: Human Milk, Am. J. Dis. Child. 53:768 (March) 1937.

Current Comment

IRVIN ABELL—PRESIDENT-ELECT

In an election in which every candidate was unopposed, indicating a remarkable unanimity of action by the representatives of organized medicine, Dr. Irvin Abell of Louisville, Ky., was made President-Elect of the American Medical Association in the annual session at Atlantic City. The popularity of the candidate is not surprising in view of his long record of service to the medical profession. In the American Medical Association he served as a delegate from Kentucky in the House of Delegates at the annual sessions of 1922, 1924-1928 and 1930-1935. He was a member and at various times has served as chairman of many important reference committees in the House of Delegates. Since 1931 he has been a member of the Council on Scientific Assembly and since 1935 its chairman. Dr. Abell was born in Lebanon, Ky., Sept. 13, 1876. He received his A.M. degree from St. Mary's College, St. Mary, Ky., in 1894 and his M.D. from the Louisville Medical College in 1897. He continued his studies at the University of Berlin in 1898. Since 1900 he has practiced in Louisville, Ky., becoming professor of surgery in the University of Louisville in 1904 and serving continuously in that position. He has been visiting surgeon of the Louisville Public Hospital and the St. Joseph Infirmary, and consulting surgeon for the Children's Free Hospital and the Kosair Hospital for Crippled Children. Among other positions indicating his executive ability, he is a director of the Commonwealth Life Insurance Company, the Fidelity and Columbia Trust Company and the Louisville Foundation, and also a trustee of the University of Louisville. Dr. Abell holds memberships in the American College of Surgeons, the American Surgical Association, the Southern Medical Association, the Southern Surgical Association, the American Urological Association and the American Gastro-Enterological Society. He served recently as chairman of the McDowell Committee, which purchased the McDowell home in Danville, Ky., and aided in its restoration. During the World War he was a Lieutenant Colonel, commanding Base Hospital No. 59, then Colonel in the Medical Officers Reserve Corps

and commanding officer of the United States Army Reserve Corps Hospital No. 59. Noted for his geniality and his lovable character, he should have the confidence and the cooperation of all the members of the great organization in which he is now given leadership.

INTRA-UTERINE FETAL RESPIRATION

Is intra-uterine respiration of the amniotic fluid a normal function in the full term mammalian fetus? Does it serve a useful purpose in the dilation of the pulmonary alveoli and bronchial passages? Some unconventional conclusions by Snyder and Rosenfeld¹ of the department of pharmacology at Johns Hopkins University School of Medicine were based on laparotomy studies on seven full term pregnant rabbits, the operations being performed beneath the surface of a bath of Ringer's solution at 37 C. In these seven operations they found twenty-five full term fetuses, fourteen of which showed active respiratory movements at the time of laparotomy. To demonstrate an actual tidal flow of amniotic fluid in the respiratory tract of these fetuses, 1 cc. of 50 per cent india ink was injected into each amniotic sac. From one to sixty minutes after injection the trachea of each fetus was clamped and the lungs were examined and fixed in solution of formaldehyde before removal of the clamp. The fixed lungs were studied by histologic methods. In all fetuses showing demonstrable respiratory movements the lungs were blackened by the inspired india ink. The eleven apneic fetuses showed lungs macroscopically and microscopically free from carbon particles. Litter mates breathing at different rates showed a correlation between the rate of respiration and the depth of pulmonary blackening. In a fetus breathing at the rate of ninety-six per minute, for example, the lungs were much darker than those of a litter mate breathing at a rate of ten per minute. The authors conclude that "amniotic fluid normally occupies the alveoli of the fetal lung," that "spontaneous respiratory movements are responsible for a tidal flow in the respiratory tract," and that this "interuterine respiration is of functional significance in the development of a normal lung."



IRVIN ABELL, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

1. Snyder, F. F., and Rosenfeld, Morris: *Proc. Soc. Exper. Biol. & Med.* 36: 45 (Feb.) 1937; *J.A.M.A.* 108: 1946 (June 5) 1937.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE EIGHTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 7-11, 1937

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 7

The House of Delegates convened in the Renaissance Room of the Ambassador Hotel and was called to order at 10:05 a. m. by the Speaker, Dr. N. B. Van Etten.

Preliminary Report of the Reference Committee on Credentials

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. Benjamin F. Bailey, Nebraska, who reported that 102 delegates with proper credentials had registered but that the number would be greatly increased before the first session of the House adjourned. Dr. Bailey read a letter from the Section on Nervous and Mental Diseases submitting the name of Dr. Hans H. F. Reese as its delegate since the duly elected delegate and alternate from that section were unable to be in attendance. On motion of Dr. J. Gurney Taylor, Wisconsin, seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried, Dr. Reese was seated.

Dr. Arthur J. Bedell, Section on Ophthalmology, moved that the report of the Reference Committee constitute the roll of the House. The motion was seconded by Dr. George W. Kosmak, New York, and carried.

Adoption of Minutes of Kansas City Session

It was moved by Dr. George W. Kosmak, New York, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried, that the minutes of the Kansas City session be adopted as printed.

Message of Sympathy

The Secretary announced that his assistant in the House of Delegates, Miss Hattie A. Niehoff, had been called home because of the sudden death of her mother, and it was moved by Dr. Samuel J. Kopetzky, New York, seconded by Dr. George W. Kosmak, New York, and carried, that the House instruct its Speaker to send a telegram of sympathy to her.

Official Delegates and Invited Guests

The Secretary announced that the House of Delegates would be honored this year by the presence of official delegates and guests from foreign countries, who would be presented to the House at some later time during the session.

Executive Session—Monday Morning, June 7

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried, the House went into Executive Session at 10:25 a. m., the membership to consist of duly accredited delegates, general officers, past and present, delegates from the American Bar Association and presidents and secretaries of constituent state medical associations.

The Sergeants-at-Arms polled the House, after which the House went into Executive Session.

At the request of the Speaker, the Secretary read telegrams received from Hon. J. Hamilton Lewis, U. S. Senator from Illinois, requesting the privilege of addressing a section of the Association.

It was moved by Dr. G. Henry Mundt, Illinois, seconded by Dr. A. T. McCormack, Kentucky, and carried, that the Secre-

tary be instructed to inform Senator Lewis that he would be welcome to appear before the House of Delegates, the time best suited being at the beginning of the Executive Session on Tuesday afternoon, June 8.

The House rose from Executive Session on motion of Dr. C. E. Mongan, Massachusetts, seconded by Dr. J. D. Brook, Michigan, and carried.

Address of the Speaker, Dr. N. B. Van Etten

The Vice Speaker, Dr. H. H. Shoulders, Tennessee, presided while the Speaker, Dr. N. B. Van Etten, read his address, which was referred to the Reference Committee on Reports of Officers:

Members of the House of Delegates:

Many of you are so familiar with the figures that play their parts on this stage that you could not fail to recognize them in any other setting. The classic features of the distinguished Secretary must be indelibly engraved on your memory. Presidents and other officers have identified themselves in this spotlight and have been embarrassed by your scrutiny as they have labored for your approval. On the other hand, those you have honored with the courtesy of these vantage points have been looking into your faces and beyond your faces with the deepest interest in your foreground and your background. Each one of you has grown up through the fundamental culture of your homes, your schools, your social contacts, your own investigations, your appreciation of your opportunities, your realization of your responsibilities and your emotional reactions until what you are has made such an impression on those who know you that they have chosen you to represent them here.

From 1846 until this day your seats have been occupied by selected persons. You represent 100,000 physicians. Those who delegated you are the most highly educated groups of citizens of the Republic, and they selected you because of your inherent quality. They have delegated you to interpret their desires for the best interests of organized medicine. I do not believe that there is anywhere another assemblage of 170 men that is superior in intelligence. You are the most important officers of American medicine and you in turn have delegated authority to officers and trustees who are bound to execute your mandates.

The American Medical Association has been freely accused of being reactionary, static, slow, and unresponsive to social demands. Some of our own members are impatient to meet social problems quickly. If there is justice in these complaints you must regard them as valid criticisms of this legislative body because you have made the policies of the Association. Many of these criticisms are evolved in ignorance. Captious criticism is frequently the expression of those who seek to evade responsibility for their own incompetence. Shifting responsibility is a common pastime.

Early records of organized medicine in the era of Babylonian culture 4,000 years ago reveal organization of medical men to protect the public from quacks and charlatans and also for self preservation—and these ideals have prevailed through the centuries.

In our early American history when competitive life was less intense, physicians seem to have associated themselves mainly for deliberative purposes. In those early days the House of Delegates had simpler problems, mostly concerned with medical education and licensure. With the evolution of American society there has come a need for concerted labors and a demand that deliberation be translated into action. Pressure groups are pushing the medical profession into unfamiliar

channels that lead to organization for political progress and for defensive activity against outside control.

This House of Delegates has a legislative responsibility which is a serious one and must not be taken lightly. Article 5, Section 1, of the Constitution reads: "The legislative powers of the Association reside in the House of Delegates. The House of Delegates shall transact all business of the Association not otherwise specifically provided for in this Constitution and By-Laws, and shall elect the general officers."

You are the policy makers, you elect the general officers and the Trustees who are obligated to carry out your instructions, but these Trustees also have powers limited by the Constitution in Article 7, which reads: "The Board of Trustees shall have charge of the property and financial affairs of the Association and shall perform such duties as are prescribed by law governing directors of corporations." You have, however, laid on the Trustees, by your resolutions, many other duties which they must try to perform to the best of their abilities.

Sitting with the Trustees, as is my privilege, I have been greatly impressed by their meticulous fidelity to their obligations and also by the fact that very little careless legislation passes this House.

Although the complexion of the House of Delegates changes from year to year, there are fortunately a sufficient number of seasoned members to guarantee continuity of experience. The lessons of the past may wisely check ill-considered action without strangling vitality.

Thirty-six of the delegates elected to this House began their services fifteen or more years ago, twenty-one attended their first session twenty or more years ago, and eleven delegates began their activities in this department of organized medicine twenty-five or more years ago. The service of these delegates has not in every instance been continuous, but their presence at this session is evidence of the high esteem in which they are held in their home states. Their long and distinguished service has materially strengthened the respect in which the House of Delegates is held by American physicians. While all these delegates deserve commendation, it seems fitting that eleven of them should be placed on an honor roll today.

For the purpose of identifying them to the new members, I would like them to rise for a moment as their names are called.

Dr. Thomas S. Cullen, Maryland, attended his first session in 1902 and is now attending his thirtieth session; he is dean in point of attendance.

Dr. George F. Johnston, Wyoming, first came to the House in 1903 and is serving his thirteenth session.

Dr. Edward H. Cary, Texas, attended his first session in 1906. He has been seventeen times a delegate, attended four other sessions as a Trustee, one as President-Elect and one as President and is now starting his twenty-fourth session.

Dr. Arthur T. McCormack, Kentucky, attended his first session in 1908 and begins his twenty-fifth session today.

Dr. Edgar A. Hines, South Carolina, attended his first session in 1910 and enters on his twenty-eighth session this morning.

Dr. Roger L. Lee attended his first session in 1911 and is now attending his twelfth session.

Dr. Arthur C. Morgan, Pennsylvania, began his service in 1911 and is now attending his eleventh session.

Dr. Ben R. McClellan, Ohio, also began his service in 1911 and is now serving at his twenty-fourth session.

Dr. Grant C. Madill, New York, attended his first session in 1912 and enters his eighteenth session today.

Dr. William D. Johnson, New York, also came the first time in 1912 and begins his eighth session this morning.

Dr. Holman Taylor, Texas, also belongs to the class of 1912 and has regaled the House with wit and wisdom for twenty-two sessions.

There are five other men who deserve special medals with palms for consecutive, uninterrupted service for more than twenty years, exemplars of extraordinary appreciation of their value to organized medicine. I should like them to rise also. They are: Dr. J. H. J. Upham, Ohio, whose twenty-four sessions have not been interrupted; Dr. Charles J. Whalen, Illinois, whose twenty-three sessions have had no interruption; Dr. Rock Sleyster, Wisconsin, whose twenty-three sessions have had no interruption; Dr. J. D. Brook, Michigan, who is here for his twenty-second session, and Dr. Arthur J. Bedell, New York, who now enters his twenty-first session.

Having identified the veterans, I would like to introduce seventeen men who are here for the first time. Will they please rise as their names are called?

Arkansas.....William H. Mock
California.....Robert A. Peers

Delaware.....Stanley Worden
Illinois.....E. S. Hamilton
Kentucky.....E. L. Henderson
Massachusetts.....Walter A. Lane
Michigan.....T. R. K. Gruber
New Jersey.....Blase Cole
New York.....James H. Borrell
New York.....Thomas H. Cunningham
Vermont.....A. B. Soule Jr.
Washington.....Raymond L. Zech
Wisconsin.....Gunnar Gundersen
Alaska.....Noble Dick
Philippine Islands.....Frederick W. Meyer
Puerto Rico.....Ramón M. Suárez
United States Navy.....Robert E. Stoops

To you gentlemen, the Speaker extends the right hand of fellowship and asks your active participation in all discussions. I trust that a Thomas Cullen and an Edward Cary and an Edgar Hines may be found among you and that you may be returned from your states to break all records.

May I add that all members of the House should remember that they have not discharged their full duty until they have followed their resolutions to the Reference Committees to which they have been committed and may I also remind you that all Reference Committee rooms are open to all of you.

It is desirable that Reference Committees meet at the earliest possible moment and that they make every effort to prepare their reports so that the business of the House may move as rapidly as is consistent with parliamentary procedure.

Since the Kansas City session last year thirty-four former delegates or officers have died. The dates following their names indicate their years of service:

H. L. Alkire, Topeka, Kan., 1908.
William H. Arthur, United States Army, 1915.
Elias Hudson Bartley, Brooklyn, 1909-1910.
Arthur G. Bennett, Buffalo, 1926.
William Joseph Birkofer, Gothenburg, Neb., 1910.
Daniel S. Dougherty, New York, 1927-1928; 1930-1932; 1935.
William Duffield, Los Angeles, 1932.
Duncan Eve Sr., Nashville, Tenn., 1903-1904 (first vice president, 1887).
Frank Y. Gilbert, Portland, Maine, 1914; 1917; 1919; 1927; 1930.
John F. Hagerty, Newark, N. J., 1926-1927; 1930-1934; 1935 Special Session; 1935-1936.
Rufus B. Hall, Cincinnati, 1908-1909; 1919.
S. W. Hammond, Rutland, Vt., 1905.
George A. Hare, Fresno, Calif., 1912-1915.
A. M. Hayden, Evansville, Ind., 1906; 1908.
J. Allison Hodges, Richmond, Va., 1923.
Thomas B. Holloway, Philadelphia, 1918.
Collins H. Johnston, Grand Rapids, Mich., 1908.
A. Haines Lippincott, Camden, N. J., 1935.
W. C. Lyle, Augusta, Ga., 1911; 1914; 1922.
J. Tate Mason, Seattle, Wash., 1928; 1930-1934; 1935 Special Session (President-Elect, 1935-1936; President, 1936).
William H. Mayer, Pittsburgh, 1920-1934; 1935 Special Session; 1935.
Henry P. Newman, San Diego, Calif., 1916-1918.
Edward S. Reynolds, Boston, 1921.
William L. Rich, Salt Lake City, 1923.
W. B. Scull, Philadelphia, 1911; 1920.
Sidney K. Simon, New Orleans, 1922.
Frank Smithies, Chicago, 1927-1930 (member of Council on Scientific Assembly, 1930-1935).
Willard Springer, Wilmington, Del., 1902; 1917.
Wells Teachnor Sr., Columbus, Ohio, 1924-1925; 1927-1934; 1935 Special Session; 1935-1936.
Randolph Winslow, Baltimore, 1905-1906; 1911; 1913; 1916-1923; 1927-1934; (member of Judicial Council, 1915-1922).
H. M. Workman, Tracy, Minn., 1905-1906.
John T. Axtell, Newton, Kan., 1913.
James N. Vander Veer, Albany, N. Y., 1926-1935.
George A. Leitner, Piermont, N. Y., 1923-1935; (for many years served as Sergeant-at-Arms).

Many of us have vivid memories of these, our friends. I am sure that we shall be motivated by their inspiration.

At the request of the Vice Speaker, the members of the House rose and stood for one minute in silent tribute to the memory of departed delegates.

On motion of Dr. Charles H. Goodrich, New York, seconded by Dr. Walter E. Vest, West Virginia, the House consented to the appointment of a Reference Committee on Executive Session.

Reference Committees

The Speaker presented the following names of members of Reference Committees:

SECTIONS AND SECTION WORK

J. E. Paullin, Chairman.....	Section on Practice of Medicine
Arthur J. Bedell.....	Section on Ophthalmology
Elbridge J. Best.....	California
J. Allen Jackson.....	Pennsylvania
Charles R. Scott.....	Idaho

RULES AND ORDER OF BUSINESS

H. A. Luce, Chairman.....	Michigan
Wyndham B. Blanton.....	Virginia
J. P. DeWitt.....	Ohio
Samuel J. Kopetzky.....	New York
Raymond L. Zech.....	Washington

MEDICAL EDUCATION

F. S. Crockett, Chairman.....	Indiana
George Blumer.....	Connecticut
J. T. Christison.....	Minnesota
Charles A. Dukes.....	California
Walter E. Vest.....	West Virginia

LEGISLATION AND PUBLIC RELATIONS

Terry M. Townsend, Chairman.....	New York
J. C. Flippin.....	Virginia
Harold T. Low.....	Colorado
Stanley H. Osborn.....	.....
.....Section on Preventive and Industrial Medicine and Public Health	.....
J. Gurney Taylor.....	Wisconsin

HYGIENE AND PUBLIC HEALTH

James O. Graves, Chairman.....	Louisiana
Lewis B. Bates.....	Isthmian Canal Zone
W. F. Draper.....	United States Public Health Service
Meredith Mallory.....	Florida
G. Henry Mundt.....	Illinois

AMENDMENTS TO CONSTITUTION AND BY-LAWS

J. N. Baker, Chairman.....	Alabama
Charles H. Goodrich.....	New York
George P. Johnston.....	Wyoming
Virgil E. Simpson.....	Kentucky
Thomas F. Thornton.....	Iowa

REPORTS OF OFFICERS

Wingate M. Johnson, Chairman.....	North Carolina
J. Newton Hunsberger.....	Pennsylvania
R. L. Sensenich.....	Indiana
Joseph F. Smith.....	Wisconsin
Guy W. Wells.....	Rhode Island

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Floyd S. Winslow, Chairman.....	New York
Clyde L. Cummer.....	Section on Dermatology and Syphilology
Arthur C. Morgan.....	Pennsylvania
McLain Rogers.....	Oklahoma
Joseph F. Siler.....	United States Army

CREDENTIALS

B. F. Bailey, Chairman.....	Nebraska
J. W. Burns.....	Texas
Blase Cole.....	New Jersey
William H. Myers.....	Georgia
Deering G. Smith.....	New Hampshire

MISCELLANEOUS BUSINESS

J. D. Brook, Chairman.....	Michigan
Herbert L. Bryans.....	Florida
Walt P. Conaway.....	New Jersey
Charles S. Skaggs.....	Illinois
C. W. Waggoner.....	Ohio

EXECUTIVE SESSION

Thomas A. McGoldrick, Chairman.....	New York
J. H. Cannon.....	South Carolina
E. H. Cary.....	Texas
E. F. Cody.....	Massachusetts
John H. Fitzgibbon.....	Oregon

COMMITTEE ON REAPPORTIONMENT

Walter F. Donaldson, Chairman.....	Pennsylvania
H. B. Everett.....	Tennessee
Charles J. Whalen.....	Illinois
Olin West.....	Secretary
Nathan B. Van Eiten.....	Speaker, House of Delegates

SERGEANTS AT ARMS

Holman Taylor.....	Texas
Howard C. Frontz.....	Pennsylvania

Committee to Propose Amendments to By-Laws
Providing for Fitting Recognition to Fellows
Rendering Distinguished Service in
Science and Art of Medicine

H. H. Shoulders, Chairman.....	Tennessee
John W. Amesse.....	Colorado
J. D. Brook.....	Michigan
J. F. Hassig.....	Kansas
Grant C. Madill.....	New York

Address of President Charles Gordon Heyd

The Speaker resumed the Chair and presented the President, Dr. Charles Gordon Heyd, New York, who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

A philosopher observing the passing pageant of social change might well exclaim "Cursed be the social lies that warp us from the living truth." He would listen to a melody of chaos, with embattled nitwits wishing to destroy the cultural and physical progress of the last fifty years by a futile attempt to remodel human nature and incidentally remake the entire field of medical practice to his heart's content.

It is opportune that we should survey the situation. At the outset I grant that there are certain areas in the United States where there is what may be termed inadequacy of medical service. There will remain such inadequacies of service until the enlightening benefit of education, until there is an increase in nutritional standards, until good roads and long continued health education have rendered it possible to bring the intellectual and cultural level of the people living in these areas to a social plane that makes modern medicine possible of application. Medicine today is doing its social duty in a continuous and unostentatious manner but with a constant increment of effectiveness in improving the health of all of our people. The mortality and morbidity statistics give the final answer as to the effectiveness of the medical service. In the last thirty-five years the crude mortality has diminished; better babies are being born, individuals are living longer and many diseases have almost completely disappeared or are being brought into a numerical condition of an irreducible minimum. As contrasted with this we have the violence from the fast tempo of American life, which has killed yearly more and more of our citizens until death by accident is fifth in the causes of death.

In the broad social sense, conditions of housing are improving, hours of labor are being reduced, the wages of the laborer are being increased and nourishment is becoming more adequate and more scientific. In brief, the personal and environmental conditions of life are improving everywhere in the United States.

The profession, under the give and take of free competition in medical practice, has produced insulin, liver therapy and vitamin nutrition, has developed orthopedic, cancer and restorative surgery, has made diagnosis precise by advances in x-rays and instrumentation, and has evolved effective therapy with x-rays and radium—in brief, has been so prolific in useful discoveries that medicine is to be rated well in advance of any of the physical sciences.

There are, however, on the medical horizon certain provocative questions. Organized medicine is not immune from critical study and must find the answer to certain impending changes in our medicosocial organization. The abstract question "Has an individual a claim on government for personal medical care?" should be answered. Governmental agencies control education, influence public opinion, have the major portion in the management of widespread health movements, and with legislative enactment control hours of labor, child labor and conditions under which labor works. It would be apparent that medical care is a problem not alien to the purpose of government, for the health of its citizens must be one of the paramount considerations of the state.

Society may be divided into four main groups. This division is based on their economic status: 1. The rich: The members of this class are quite capable of paying for medical services; they constitute great economic power but little, if any, political power. 2. The salaried group, as distinguished from wage earners: These persons are able to buy medical services under the ordinary conditions of a proper economic system; they are not politically powerful and as a rule are not organized politically. 3. The wage earners: This group constitutes approximately 27,000,000 individuals and earned \$34,485,000,000 in 1929. They represent the acme of political power; they may and usually are organized by astute politicians for the furtherance of machine politics and class privilege. Under normal circumstances they can pay for ordinary sickness, but their financial position is in jeopardy in the presence of a sudden, emergent, catastrophic illness. 4. The indigents: An indetermined number

who by reason of poverty, maladjustment and diverse reasons, cannot pay for medical services at any time under any economic system.

Four factors contribute to the medicosocial disabilities of the present day: (1) the utilization of power in the production and maintenance of machines, (2) the crowding of the world by the biologic phenomena of accelerated production, (3) the immense accumulation of scientific knowledge, and (4) the tremendous upsurge and steady rise in average education.

It is not compulsory health insurance or state medicine that will destroy free and competitive medical practice; it is an extension of institutional medicine for which the state will provide the funds. The hospitals under the full time, paid physician are in spirit and many times actually practicing medicine. These same hospitals are confronted with a diminishing income. In 1929 the voluntary hospitals received \$130,000,000 from private benefactors and in 1935-1936 received \$24,000,000, a decrease of 80.9 per cent. The hospital system faces no new givers of large funds, and hospitals have had the income from their investments reduced. It is not improbable that the state will enter into this picture in order to maintain the existing hospitals, clinics and health centers already set up. This will certainly entail political control of the greatest source of medical practice and it requires but little imagination to anticipate that the second step in this program will be the control of the medical schools.

Many prophets in high office have been preaching the pernicious doctrine that the high cost of medical care is due to the doctors. This requires some analysis. The statistics of outpatient departments show that more and more people are availing themselves of free dispensary medical service. The percentage of increase in free dispensary service is describing a curve with a greater acceleration than the increased rate of population. Obviously, if this is carried to its final conclusion everybody would eventually be free dispensary patients. More and more physicians will of necessity become salaried physicians, which by and of itself is neither good nor bad. The fact that a doctor has a salaried position lessens his overhead and in many cases takes away from and keeps away from him his greatest source of worry; namely, the overhead in slack times.

It is not good public policy to ask the doctor to contribute largely of his time, strength and health in rendering free services in the hospital or in the community, when every other person who comes in contact with the sick is paid adequately for the services rendered.

It is apparent that solidarity of the medical profession is under constant sabotage by groups on the fringe of the profession. Furthermore, we have within the profession certain pressure and compulsion groups that are endeavoring by indirection to set up alien forms of medical service. This fractionalization of medical organization, or, better, fragmentation, has done much to implement the enemies of the profession. It would seem wise that we reexamine and reappraise our medical policies. There is literally a tower of Babel apparently speaking for the profession. It has often seemed to me that Elbert Hubbard's beautiful brochure "Essays on Silence" would be a splendid gift to some of our professional planners. You will remember that this particular brochure has seventy-five pages without a word on them. The House of Delegates of the American Medical Association is rightly the voice of the organized medical profession and should speak in unequivocal terms what it considers the best form of medical practice for the citizen of the United States. Your Trustees have been vigilant in anticipating some of the various attacks made on the medical profession. They have fulfilled the spirit and substance of your instructions in a most praiseworthy manner. In like measure *THE JOURNAL* has been particularly alert and forceful in interpreting your actions to the membership. Tremendous changes have taken place in our conception of society, and life is moving forward with a constantly accelerated momentum. Our final objective or destination may be obscure, yet change there will be. Organized medicine is the spirit of service and is founded on loyalty to traditions. It is in essence a fidelity to an ideal. It makes for continuity of effort and endows organizations with character. Medical progress is not a static principle but a dynamic concept of service to the community for the taking care of the physical and mental condition of society. By constantly accepting the advances in science, organized medicine has accelerated

the health of the people and reduced the measure of illness. Organized medicine believes that it is by this dynamic quality of scientific progress that good medical practice has been given and will continue to improve, and that fundamentally the question is quality of medical service and not the cost of medical service.

There are a number of major problems to be solved. The question of medical indigence—a condition untouched and unanswered in all systems of compulsory health insurance—is constantly before us and should engage our serious consideration. Are we prepared to accept the following propositions?

1. That every practitioner believes that the proved indigent is entitled to medical services free of all charges and that the cost of this service should be paid by taxes levied on the general population.

2. The principle that indigence is a local problem and should be handled in the area in which it arises.

3. The extension of medical services to the indigents in their homes and the doctors' offices with remuneration to the physicians on a capitation basis under the direction of the county medical society, all free services to indigents to be rendered by the physicians or outpatient department of the hospital within the geographic or regional zone in which the indigent resides.

4. The certification of indigents, fairly, sincerely, honestly and sympathetically by the application of standards of eligibility, by central bureaus under the department of welfare, with proper representation from the county medical society. It should not be the function of the outpatient department to pass on the validity of indigents, nor should they admit for free services those that are not in truth indigents.

5. A medical census of the indigents, to learn what our load is and how to take care of it. There should be devised a positive means of identification to prevent padding of the lists.

6. A limitation of the number of patients that may attend any one clinic. Since it is claimed that there is no profit in clinic and outpatient department services, there should be no desire for a hospital to increase the number of outpatients beyond its capacity to take care of them. To save valuable time, with the economic loss, clinics could be run with a limited number and on an appointment basis.

7. The payment of a fair remuneration to all physicians working in outpatient departments or giving medical services to the indigents in their homes. This remuneration must not be so low as to bring with it an inferior medical practice and the palliative bottle of medicine. It should not be too high. A fair average can be worked out and still maintain the best qualities of scientific medicine. In the planning of the details of this service it might seem wise to set up a special subdivision of activity under the auspices of the county medical society.

8. The unequivocal opposition to all forms of compulsory health insurance. Insurance schemes tend to relieve the individual of his own responsibility and to increase the prolongation of illness. In short, under an insurance scheme it is profitable for a person to be sick.

9. It is apparent, without wishing to be invidious, that there are, medically speaking, backward areas where the paucity of population and physicians, or its low level economically, or its extreme congestion and poor living conditions render it impossible to provide a fair degree of medical services under the present personal remuneration basis. In such areas it is desirable for the local or state health agencies to set up a laboratory service in chemistry, pathology and bacteriology for the use of practitioners in that area, these laboratories to be established on a regional or geographic basis and with and by representation by the local county medical unit and/or the state medical society. This service is to be a purely diagnostic laboratory service for physicians only, such as exists in our more forward looking states with regard to Widal, Wassermann and other diagnostic procedures. No treatment in any form should be provided under this set up.

10. The studies on rural medical service should be continued and general principles and policies elaborated for consideration by the House of Delegates. The employment by the government of medical personnel for services in unusual or geographically remote areas has been recommended.

11. What are we to do with "catastrophic illness?" By catastrophic illness I mean the emergency that is expensive and for which no ordinary family can budget. Its emergency character, its expense and the necessity for immediate help render it an

important item in the conception of any medical service. It probably represents from 8 to 10 per cent of acute illness at any one time.

It seems to me that these are not unattainable objectives but can be brought into being by a mutual consideration of the problems between the various parties interested and organized medicine.

A recent event in regard to health insurance in British Columbia is not without its significance. Agitation for such insurance began to take form when a royal commission on state health insurance and maternity benefits was appointed in April 1929. The final report of the commission, published in 1932, recommended "suitable compulsory health insurance including maternity benefits." The British Columbia Medical Association and the Canadian Medical Association laid down the principles that they felt should be included in such a law. Assuming the acceptance of these principles, a majority of the members of the British Columbia Medical Association in 1934 stated that it would approve a plan. In 1935 a plan was proposed by a provincial committee, which included all these principles and was generally accepted. When the time came for enactment, it was discovered that the government refused to assume any financial responsibility or to appropriate any money for the care of the indigent and the low income classes. Opportunity was given for thorough consideration of these objections and of the law as a whole, and then the 635 members of the College of Physicians and Surgeons of British Columbia were questioned as to whether they were willing to serve under the law. As has already been reported in *THE JOURNAL*, votes were received from 632, of whom 619 voted against the plan and thirteen in favor. Since it was manifestly impossible to introduce any system of sickness insurance against such a united front of the physicians, the Premier issued instructions to postpone operation of the law.

There rests on the medical profession one obligation that is superlative to all others. We have received from the past the splendid edifice of modern medicine. It is our natural duty to hand that on to generations yet to come, with the splendid spirit of science and the spirit of loyalty. The ranks of organized medicine must stand fast, must speak unanimously with one resonant voice, so that medicine shall be free to explore the unheralded realms of science and march forward with increasing effectiveness. Hundreds of years ago it was stated that "where there is no vision, the people perish."

Address of President-Elect J. H. J. Upham

The Speaker presented the President-Elect, Dr. J. H. J. Upham, Columbus, Ohio, who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

In the past twelve months the opportunity and privilege have been given me to attend sessions of the component state societies of the American Medical Association and allied medical society meetings in seventeen states—from Vermont to Utah, from Wisconsin to North Carolina—thus gaining more or less a cross-section view of our medical organization, medical practice and the desire for the acquiring of self improvement in medical information in these areas.

In such an itinerary one is greatly impressed by the great differences in the area of many of these states, the variation in the population and the prevailing types of occupation as they affect the medical profession and medical practice.

Some relatively small states are densely populated. They have large cities with manufacturing and mercantile interests, and considerable tributary suburban areas with relatively smaller rural population. In such states one sees all types of medical practice, industrial, urban, suburban and rural, but even in the last named few areas are so isolated as not to be in fairly convenient reach of hospital and laboratory aid. Therefore, medical organization is relatively simple and is efficiently carried on; medical practice is maintained on a fairly high average plane, and the interest in self improvement in medical information is correspondingly evident.

Other states may be four or five times as large, with populations one tenth as great. Some of these have huge stretches of prairie or mountainous areas with resulting isolation of the

widely scattered inhabitants largely engaged in agricultural pursuits. In these areas the difficulties of maintaining medical organizations and providing even relatively adequate medical care may readily be seen. The progress that is being made and the interest in medical activities and medical progress are gratifying when one notes the relatively high percentage of membership attendance at the annual state meetings in spite of the often considerable sacrifice of time and effort entailed.

One is further impressed by the number and variety of other conditions that affect the medical profession and medical practice, which bring many and varied problems peculiar to America and different from practically all other civilized countries. Some of these are the diversity of climatic conditions from Maine to California and from the Dakotas to Florida. Largely because of these, together with topographic accessibility to foreign countries, there have been definite trends in immigration, causing different racial mixtures in various sections. To realize this in general terms, it is only necessary to mention the large element from middle and southern European countries settled in our metropolitan cities of the East, the influx from northern Europe and especially the Scandinavian countries to the Northwest, the immigrants from the Orient and Mexico in the West and Southwest, and the large Negro element in the South. From these topographic and racial conditions alone one may see the insurmountable obstacles to providing a standardized practitioner or a single standardized type of medical practice.

We are rather prone to pride ourselves on our educational system in this country; on our number and excellence of high schools and colleges. It is probably true that illiteracy is relatively low and that cultural and technical education is on a high average plane. When, however, we note everywhere the great number of parasitic pseudoscientific healing cults prevailing today and the flourishing "patent" medicine and proprietary nostrum companies, and see highly educated people following after these false gods and patronizing charlatans, we become pessimistic and wonder whether intelligence has kept pace with education. The explanation would seem to be either that there is a too general lack of information on the part of the public in health matters and a consequent failure of appreciation of modern scientific medicine, or that too many have experienced failure of relief from too large a proportion of medical practitioners, or perhaps both of these reasons.

Finally, as one travels over the country one is impressed by the feeling of unrest in medical circles, manifested in the frequent discussions of the socialization of medical practice, the resentment against the charges of the prevailing inadequacy of medical practice, and medical responsibility for the alleged excessive costs of medical care.

At present the best minds in our organization are unceasingly considering the latter widely publicized questions, and information is being gathered and careful studies are being made of experiences in other countries as well as in our own. Those familiar with the ideals and policies of the leadership of the American Medical Association know full well that these policies aim toward evolution rather than revolution.

Our association is not reactionary nor is it struggling to maintain the status quo merely because it is the status quo. Rather, it is resisting with all its power the suggestions of theorists and experimenters of any and all schemes which would impair or cause deterioration of the quality of medical practice in this country.

In the meantime, two lines of organization activities might engage the attention of this body: first, the subject of the continued education of our members after graduation, and, second, the better informing of the public with regard to modern scientific medicine and health matters in general.

It may be said, and said truly, that both of these are already a well established part of the activities of the Association. The Council on Medical Education and Hospitals has done a monumental service in the grading of hospitals for the training of interns and stimulated the medical growth of the attending physicians by the requiring of monthly meetings of the staffs. The general organization plan of the Association requires meetings of the component county and state societies. From a questionnaire sent out to representative areas of the country, the attendance at these is relatively excellent. That these are

not enough to satisfy the urge of the general profession for medical information, however, is shown by the fact that there are listed in the latest edition of the American Medical Directory 140 additional special and sectional societies holding at least one or more meetings a year.

The number of medical society meetings has become burdensome, and a study of the programs shows a lack of systematic planning. It would seem opportune to recommend to the Council on Medical Education and Hospitals that its next logical step should be to survey the present conditions, and particularly to study the possibilities of the traveling postgraduate courses organized already in some states through the cooperation of the state associations and medical colleges in those areas with the hope of bringing modern medical developments to practitioners living in the more isolated areas, who are unable to attend meetings often because of lack of accessibility to the usual meeting places.

With regard to the education of the public, the work of the Bureau on Health and Public Instruction is greatly to be commended, and its work is well supplemented in some states.

It would, however, be a great aid in extending this increasingly essential activity if this body would draw the attention of all the component societies to the almost overwhelming mass of misinformation and false statements constantly issuing through the radio, through the daily press and through some so-called popular magazines, directly inspired by antimicrobial sources.

I would suggest for your consideration the thought of the advisability of recommending to the Board of Trustees the calling of a conference of representatives of the component state societies to consider this subject, or the making it a special topic for consideration at the next Annual Conference of State Secretaries, in the endeavor to stimulate a greater interest and seek some general country-wide program of systematic effort correlated with that of the national organization.

REPORTS OF OFFICERS

Report of the Secretary

Dr. Olin West presented his report as Secretary, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

Report of the Board of Trustees

Dr. Rock Sleyster, Chairman, presented the report of the Board of Trustees, and stated that at a meeting of the Board, June 6, a resolution was unanimously adopted recommending to the House of Delegates that a Council on Industrial Health be established. The report of the Board of Trustees was referred to the Reference Committee on Reports of Board of Trustees and Secretary, except those portions of the report referring to the Bureau of Legal Medicine and Legislation, to the Bureau of Medical Economics, to the Bureau of Health and Public Instruction and to the report on Occupational Diseases and Industrial Medicine, which were referred to the Reference Committee on Legislation and Public Relations; those portions of the report referring to a National Department of Health and to the Extension of Medical Service to the Indigent, which were referred to the Reference Committee on Executive Session, and that portion of the report concerning the Motion Picture on Syphilis, which was referred to the Reference Committee on Hygiene and Public Health.

Address of Colonel W. W. Evans

The Speaker introduced Colonel W. W. Evans, representative of the American Bar Association, who addressed the House as follows:

Mr. Speaker and Members of the House of Delegates of the American Medical Association:

At this moment I feel entirely inadequate to discharge a duty which was suddenly wished on me yesterday afternoon at a time when I had just thought to recover from the conflicts and the assaults of a body of brother lawyers whom I essayed to lead in their annual meeting.

Two days of searing conflicts marked our efforts, and I thought on Sunday that I would rest and refresh myself, and

my only justification for appearing here today is that this may afford you a little opportunity of rest and refreshment from committee reports.

I come here under more or less false auspices because in the first place I wear a badge to which I am not entitled. I am not one of those medicolegal gentlemen who practice not only in the courts but on their fellow men, nor am I an ex-president of the American Bar Association. Had my parents wished on me the name of Charles as a Christian name, and the name of Hughes as a surname, and had I been able to wish on myself a glorious growth of hirsute ornaments and give me a cerebrum and a cerebellum which would do justice to a Chief Justice of the United States Supreme Court, I might have been able to fill that appellation.

I only hope that your Secretary may be as excellent a prophet as he is poor as a historian. However, I do come to you with a state of almost innocuous desuetude—I have been stewing in my own juices for the last hour, and all of the poisons which have been generated in the strife of the legal meeting have more or less come from within me.

But it is indeed a pleasant duty which I have to discharge this morning. I must say that I had little expected to address you on the close relationship of the American Bar Association and the American Medical Association.

In the few brief days that I spent in the legislature of New Jersey I had the opportunity of coming in close contact with the medical profession at a time when the medical profession of New Jersey was gravely concerned over its future by reason of the inroads of those who were known as chiropractors, chiropodists and others who sought to practice medicine. After they had met defeat after defeat at the hands of the legislature by a reasonable wall of propaganda that had put the medical profession in a very awkward and embarrassing position, they were said to be the monopolists of the medical field. However, while I had been against the medical profession by reason of the onslaughts of my own brother-in-law, who is a distinguished member of the profession and who sought to convert me by severe strictures on my intelligence, I finally was waited on by four very distinguished members of the medical profession. I think one of them was a surgeon of international reputation, Dr. Harris, a Dr. Todd, who was a general practitioner of very fine reputation in the community, Dr. McBride, who later became the president of the state Medical Society of New Jersey, and one Dr. McCoy, another distinguished surgeon. Those men labored with my youthful intelligence for somewhat like three hours before they began to convince me of the error of my ways, and they showed me by convincing proof of the extent to which our chiropractic brethren had transgressed the limits imposed on them by law, and by reason of that fine approach, for which I give the medical men great credit, they converted me, and I in turn converted a number of the members of the legislature, so that an adverse decision was changed into one that overwhelmingly passed the medical legislation of that year and put the other boys in their place.

From a background such as that, I conceived a very sympathetic interest in the medical profession, and since that time, by reason of representing litigated interests, I have been called on to expend large sums, or reasonable sums, I should say, in the retention of proper medical services by way of expert testimony, and I have also been thrown into that field which called for expert advice with respect to the retention of a field of experts and the reduction of one expert which hasn't met either with the approval of the medical profession or of the legal profession by reason of the fact that it seemed to deprive the medical profession of great emoluments.

Those things have given me a deep appreciation, so when I accepted this assignment I did so with great gratification.

I wish to convey to you at this time the heartfelt appreciation of the American Bar Association for the fine collaboration evidenced by the members of the American Medical Association. You have our common problem, you have a problem which seeks the socialization of medicine; we have a problem which seeks the socialization of the American Bar Association. We haven't the problem that you have, and that is that you have a very adequate reserve and a very splendid treasury which might prove to be a ground of assault by certain socialistic influences which are seeking to level all of those who are in a

somewhat better pecuniary position than the others, so that you may ultimately be reduced to the status of the American Bar Association financially, but I hope that day will never occur, because I believe that with the union of these two great professions and with our desire to bring home to the public the necessities of the individual initiative and the individual advancement and of the opportunity of the young man, no matter how small his stature may be, no matter how unable he is to get the great benefits derived from the educational facilities, those opportunities may still be afforded the young man, and the young man may be able to rise to those great heights which are open to the whole field at the present time.

We have our common problems, and we are laboring with them sympathetically with you, and I trust that at all times you may feel free to consult with the American Bar Association, knowing that you have a sympathetic haven for your problems which have to do with the legal profession and that you may receive there that fine measure of intelligence which your problems ought to receive.

I thank you very kindly.

Report of the Judicial Council

Dr. George Edward Follansbee, Chairman, presented the report of the Judicial Council, which was referred to the Reference Committee on Amendments to Constitution and By-Laws.

Report of the Council on Medical Education and Hospitals

Dr. William D. Cutter, Secretary of the Council, presented the report of the Council on Medical Education and Hospitals, together with supplementary reports, which was referred to the Reference Committee on Medical Education:

SUPPLEMENT A. REVISION OF STANDARDS FOR SPECIAL EXAMINING BOARDS

Four years ago at the Milwaukee session a resolution was adopted authorizing the Council on Medical Education and Hospitals to give its approval to such special examining boards as should comply with and conform to standards to be formulated by the Council.

A year later, at Cleveland, an outline of these standards for an acceptable board had been approved by the Council and was submitted to the House of Delegates and ratified, and has been in effect since that time. One of the items in this sheet of standards had to do with the period of training to be required of candidates for certification by these boards. It was realized that a period of five years would call for more intensive study and more opportunity for study than was then in existence, but it was hoped, by notifying all who would be interested that this period of training was required before the candidate would appear before a board, that better opportunities and more opportunities for training would be provided, which has been the case. It is still true, however, that adequate opportunities for graduate study for all of those who are seeking to qualify themselves as specialists are not yet available.

It is also true that there is not yet complete agreement and uniformity with regard to the application of this five year period of training for specialists. The Council has, therefore, suggested that this outline of standards for special boards be amended so that the effective date of this particular educational requirement be advanced from Jan. 1, 1938, to Jan. 1, 1942, in the expectation that during this four year period better opportunities for study and training will be provided and also that complete harmony and unanimity of opinion may be reached with regard to the necessity for such a period of training in connection with all the specialties.

Another item is suggested for your consideration and approval, having been recommended by the Council on Medical Education and Hospitals. This has to do with the credentials of men whose education has been obtained outside of the United States and Canada. The Council on Medical Education and Hospitals has been able to study, to keep in touch with and to grade the medical schools of the United States and Canada. We have no information concerning the character of education offered students in medical schools in other lands.

In order that there should be some guarantee that candidates who come before these special examining boards, if they present

credentials from other countries, have received adequate training in the fundamentals of medicine, it was suggested that such candidates be required to pass parts 1 and 2 of the National Board of Medical Examiners, which would constitute a uniform requirement for all such candidates coming into this country. The Council has approved of that revision of these essentials, and submits it now to you for your consideration.

SUPPLEMENT B. SURVEY OF MEDICAL SCHOOLS

A survey of medical schools which has been conducted by the Council during the last two or three years is briefly mentioned in the report which you have in your hands, but it was felt that we should give to the House of Delegates at this time a more detailed statement of the procedure, methods, findings and results of this survey, which is being distributed to the House.

SURVEY OF MEDICAL SCHOOLS

Thirty years ago the Council on Medical Education published the first classification of medical schools. Now it has just completed a comprehensive resurvey of the undergraduate medical course in the United States and Canada. The contrast between present conditions and those of a generation ago is too striking to pass over without notice. At the time the Council was created, most of the medical schools in this country were frankly proprietary institutions, and university affiliations, where such existed, were tenuous or merely nominal. Medical sciences, for the most part, were taught by practitioners without special training. Laboratories were inadequately equipped and laboratory work poorly supervised. Bacteriology and biochemistry were just being introduced into the curriculum. Embryology was scarcely recognized and the study of anatomy was purely descriptive, with more emphasis on memorizing the textbook than on careful dissection with correlation of structure and function. Clinical teaching consisted almost exclusively of lectures and demonstration clinics without personal contact between student and patient. At Johns Hopkins, it is true, Dr. Osler had introduced the British system of clinical clerkships, but other schools were slow to comprehend the merit of this method of instruction.

Since the publication of the Carnegie Report in 1910, the improvement of medical teaching in this country has been phenomenal, unparalleled. A hundred low grade schools have merged with others or dropped out of existence. Entrance requirements have been raised to at least two years of college work. Trained teachers have been provided in the laboratory subjects. In the clinical branches, dispensaries and hospitals are recognized as essential teaching facilities, and a clerkship, which is the modern form of apprenticeship, appears in almost every curriculum. Postmortem studies correlated with clinical studies are much more widely employed.

Progress along these lines, however, has been neither uniform nor continuous. Plans for development were interrupted by the war, and after the war there was necessarily a period of readjustment. Because of the creation in 1925 of a "Commission on Medical Education" with ample funds at its disposal, the supervision of the Council was, for a period, somewhat relaxed. It soon became evident that there was need for a thorough-going study of the aims and methods of medical education, and in 1933 the Council addressed itself to this task.

Some features of the survey have already been discussed by Dr. Wilbur (*THE JOURNAL*, March 6, 1937) and Dr. Weiskotten (*THE JOURNAL*, March 27, 1937) but it seems appropriate at this time to make to the House of Delegates a more formal report of the Council's activities in this connection. After all the recognized and two unrecognized schools in the United States and Canada had been visited, the Council analyzed the reports of the schools, the comments of the inspector, and all other available material. For the purpose of comparative study, ninety-six items were chosen and the schools arranged in an order of excellence with respect to each of these criteria. The results were then plotted on a chart in accordance with the procedure recently adopted by the North Central Association of Colleges and Secondary Schools. A pattern map, so constructed, has already been sent to each of the four year medical schools in the United States and a similar report will shortly be furnished to the Canadian schools and the so-called

two year schools. A sample of these maps may be seen at the booth of the Council, No. 649, in the Scientific Exhibit.

During the progress of the survey the Council has discovered in certain institutions conditions so unsatisfactory that it was deemed necessary, in the interests of prospective medical students and of the public, to remove them from the Council's approved list. Others were placed on probation. Still others were warned of deficiencies and were granted a period of grace during which their shortcomings might be corrected. The Council's influence, applied in these several ways, has already produced striking results. A number of schools have completely reorganized and have made fundamental improvements in student and faculty personnel. They have also secured more adequate financial support. If nothing more were to be accomplished by the survey, these changes alone would justify the Association's expenditure of time and money.

Among the defects noted by the Council may be mentioned the lack of a sound type of university control. In some cases the university affiliation is merely nominal and the medical school derives little or no benefit from the relationship. In some instances, on the other hand, the university, in the supposed interest of unity, sets up departments in which the interests of other groups are merged with those of medical students, to the detriment of the latter.

In their organization the medical schools run the gamut from the extreme democracy of faculty control to monarchical control by the dean. It may be said, however, that the schools which have shown the greatest development are those which have an efficient dean who is able to devote himself unreservedly to the upbuilding of his institution.

Probably the most important factor in determining the output of any school is the character of the input. More and more it becomes evident that a poor environment, while it may retard development, cannot ruin a really good intellect, and that, conversely, even the very best school cannot make a successful student or practitioner out of an inferior mentality. The problem of the selection of students is therefore one of the most important, if not the most important responsibility of any medical school. Only 12 per cent of the medical students now admitted have had less than three years of college work but it cannot be too strongly emphasized that, in judging the preliminary education of a candidate, quality is more important than quantity and that uniformly high scholastic attainment is a better guaranty of success than any number of "units" or degrees. The extremely rapid advances now being made in the field of chemical physiology and the rapidity with which these discoveries are finding clinical application may render it desirable to raise the minimum requirement for entrance to three years and to exact a more thorough training in organic and physical chemistry.

The curriculum requires, of course, constant readjustment. In this process of adaptation some schools lag behind, especially in the continued emphasis on didactic teaching, by means of lectures, quiz, and demonstration clinics. Bedside teaching in hospital wards demands more teachers and more time, as well as more ample clinical material, but the superiority of the results cannot be questioned. In arranging courses, some schools follow the block, or concentration, system. In its extreme form the student devotes himself exclusively to one subject until it is finished and then takes up another. Happily, few schools carry it so far. Generally speaking, however, there is a tendency, especially in the larger schools, to split the program into a considerable number of units, following a variable sequence, which are independently accredited. At the opposite pole, the French universities begin clinical teaching in the first year and carry it concurrently with the laboratory courses for several years. Somewhere near the middle is surely the best road. There is difficulty in making room for new subjects in the curriculum. Medical science advances rapidly, and the knowledge and skill required of a practitioner is vastly greater today than it was twenty years ago. The schools seem to feel that four years plus an internship is all the time the student can afford to give to his professional training. Is there any solution of this dilemma? Some schools have already found a way by utilizing a substantial part of the summer vacation. Some of the new subjects clamoring for attention are psychiatry and its broader aspect, mental hygiene; economics and

sociology as applied to the practice of medicine; industrial medicine and surgery; fractures and other traumatisms, the ever increasing concomitants of automobile traffic; physical therapeutics, a field which until the war was left largely to quackery; endocrinology and organotherapy, and medical jurisprudence in its broader aspects. The physician who, in the next two decades, will satisfactorily discharge his obligations to society must have more than a cursory acquaintance with all these phases of medicine. Diagnosis and treatment are being transformed under the influence of such new developments as radiology and immunology.

In determining the quality of the work done in an institution, the qualifications of the faculty are, next to the selection of students, the factors of greatest importance. At the time of the Council's first survey of medical schools the need of trained teachers was emphasized. Unhappily, the phrase "full-time" was used to differentiate those who chose teaching as their profession from the practitioners who engaged in teaching as an avocation. The important distinction, of course, is not in the time element but in the training, ability and interest of those who constitute the faculty. In the laboratories, standards of personnel have been greatly advanced; but in the clinical branches the controversy still rages over the merits and the functions of "full-time" and "part-time" men. The question cannot be answered by a time clock. It concerns the training experience and, above all, the inherent interest of those who teach. Obviously the man who assumes responsibility for directing a clinical department such as medicine or surgery must devote to his academic duties much more than a few hours a week. On the other hand there is an increasing weight of opinion supporting the view that the teacher who completely renounces the experiences of private practice loses something of value to his students as well as to himself. In medicine, as in other departments of the university, the professor should be a teacher by vocation and should share with his colleagues the same academic responsibilities and liberties. Another problem of growing importance concerns the increasing numbers of teachers in the preclinical branches who do not have a medical degree. Individuals may readily be cited who have been conspicuously successful as teachers of anatomy, chemistry and other subjects who have no formal training in medicine. As a general rule, however, it is our conviction that those who have enjoyed a clinical experience as students and interns will make better preclinical teachers than those who have not. In analyzing the training of those who hold responsible teaching positions it is disconcerting to find that some of our best known universities permit candidates for advanced degrees to earn them concurrently—that double credit is allowed for the same period of study. It would seem that, if graduate degrees are to have any worth-while significance, this practice should be abruptly discontinued.

With the best of faculty and the best of students medicine cannot be taught without patients, and one of the most serious problems confronting medical schools today is the securing of clinical material, adequate in kind and amount, under proper university control and readily available for teaching. For the university itself to own and maintain such facilities entails an enormous financial burden. Without such ownership the medical school is dependent on such affiliations as it can negotiate with tax-supported hospitals or those privately endowed. In the Northeastern section of the country, large endowments have accumulated and there are instances of conspicuously satisfactory affiliations between universities and private hospitals. In the Central and Western portions of the country endowed institutions are rare, and greater dependence must therefore be placed on governmental institutions with all the inherent dangers of political intervention. If a school does not own a teaching hospital it should at all events secure the right to nominate the attending staff in those services which are used for purposes of instruction. As to the minimum number of patients needed for satisfactory clinical teaching the Council has as yet no figures, but it is hoped that in a further report some light may be thrown on this subject.

So far as physical facilities and equipment are concerned, the medical schools are well off. During the last decade enormous sums of money have been spent, not always wisely, on building for laboratories and hospitals, so that there are very few schools

which lack an adequate physical plant. In spite of this fact, during the depression some schools yielded to the temptation to enlarge their classes and consequently suffered from overcrowding.

In its first survey the Council discovered that schools which depended exclusively on the income from students' fees were unable to meet the prevailing standard, and from that day to this it has become increasingly evident that financial resources other than from tuition fees are absolutely necessary to maintain a satisfactory level of instruction. Such resources may be either endowments or governmental appropriations. Before the depression it appeared that the private institutions were more generously supported. Their status in the next decade would be difficult to forecast. The budgets of medical schools range from \$1,600,000 to \$93,000, the median being \$231,000. Obviously a large school costs more to operate than a small one, but the costs do not vary directly as the number of students. There is also a wide spread in the amount expended for administration, overhead, and maintenance of plant. The Council believes that the best index of the adequacy of financial support is expenditure per student for instruction, and this figure has been developed in the pattern maps sent to each school. It varies from \$3,600 to \$170. The median, which is most significant, is \$535.

Although the time devoted to anatomy has been materially reduced, the teaching of this subject in the leading schools has been greatly improved; gross and microscopic anatomy, and embryology are more closely correlated. Charts, slides, cross-sections, models and x-rays are employed as teaching aids. In some schools, students are encouraged to construct their own models. Functional anatomy and general principles are being stressed rather than the accumulation of a vast amount of minute detail. All schools, however, have not progressed equally in this direction, and considering the country as a whole, the teaching of anatomy leaves a great deal to be desired.

Among the preclinical sciences biochemistry stands out as the subject which, on the average, has attained the most satisfactory level. Paradoxically, it is the subject in which there are the fewest teachers who have a medical background. This should not be construed as indicating that such a background is not desirable, but may be explained by the fact that chemistry is a popular subject and that there is a vast number of graduate students in this field. From among so many it is not difficult to supply the small number of vacancies in medical schools.

Departments of physiology are for the most part well organized. There is manifest a tendency to reduce the time devoted to simple experiments of the muscle nerve type and introduce more observations on intact animals including the human subject. The place of physiology in the curriculum is not yet entirely clear, especially its temporal relationship to biochemistry. In the selection of teachers of physiology, at least, it would seem that a knowledge of medicine and some clinical experience should be more generally insisted on.

Pharmacology, of all the preclinical subjects, is most generally neglected. Of sixty-six schools, barely half have organized independent departments of pharmacology with a faculty consisting of men who have received special training in this field. Since pharmacology is the foundation of therapeutics, such conditions should be promptly corrected.

Under the influence of the rapidly developing sciences of immunology and serology, bacteriology is undergoing a transformation. Experimental methods are more generally employed and less stress is being placed on the classical descriptive bacteriology of a generation ago. The increasing prevalence of so-called tropical diseases gives a new importance to parasitology, with which, in some schools, bacteriology is being combined.

Pathology is definitely recognized as the subject which ties together the preclinical and the clinical sciences. It extends through all the later years of the course. Rapidly it is outgrowing the older conception of descriptive morbid anatomy, and is being closely integrated with clinical medicine. Increasing emphasis is being placed on the study of fresh material and the correlation of the patient's history with autopsy findings. Experimental methods are more frequently used in teaching.

It is evident that pathology cannot be satisfactorily taught if isolated from the clinical departments of the medical school.

Medicine, so-called internal medicine, is the most broadly inclusive of all the clinical branches. It is responsible for teaching the fundamental methods of examination and diagnosis to which are added later the differentiated technics of the specialties. In a few schools the curriculum has been based on a recognition of this fact and the student is given his practical experience in medicine before he enters on a clerkship in surgery, pediatrics or obstetrics. The medical clerkship is also of longer duration than the others because of the greater scope of the subject and the larger variety of diseases covered, and also in order that sound habits of history taking and of physical and laboratory examination may be developed. Unfortunately, owing to large classes, or limited clinical material, this program has not been widely adopted. Too often the student rotates through his clinical assignments in a sequence determined by chance or the convenience of the registrar's office, and may find himself, without previous clerkship, attached to a service in pediatrics. It is doubtful whether this procedure can be justified, even on the ground of necessity.

The better schools clearly recognize the fact that it is not the function of the undergraduate course to train surgeons. Emphasis is placed on diagnosis, minor surgery, and emergency work, including fractures. Major surgery, and especially operative technic, is largely left for the internship and residency. The day when students spend long hours in the surgical amphitheatre is, or should be, past.

The teaching of obstetrics is at a lower level than that of the other major clinical departments. Comparatively few schools offer to their students an adequate practical experience under competent supervision. This may result from a variety of causes, one of which is, undoubtedly, the failure of administrative authorities to provide access to a sufficient amount of clinical material. Another may be the feeling on the part of teachers that the practice of obstetrics should be reserved for specialists and that therefore the ordinary undergraduate does not need much training along this line. Still another may be the fact that in many schools obstetrics is not an independent department but is combined with gynecology. In these circumstances, if the head of the combined department is a gynecologist, obstetrics may suffer.

Pediatrics is fortunate in that public interest in this subject has provided admirable facilities. Special hospitals, dispensaries, feeding stations and well-baby clinics afford a wealth of material most of which is utilized for teaching. In a few institutions there is a strange reluctance to permit medical students to enter the children's wards. In general this department rates well.

Preventive medicine, although of undoubted importance, has not yet developed a clear cut and generally accepted objective, so far as the teaching of undergraduate medical students is concerned. In some institutions a good deal of time is spent in demonstrating the activities of a state or city department of health. In others, students are required to make and report on a sanitary survey, while still others act on the assumption that for the man in practice the most important thing is that all of his daily contacts should be imbued with a realization of the importance of prevention and that this attitude can only be instilled by clinical teachers who exemplify it in their own practice. Further study of this problem is an obvious need.

Psychiatry is another subject which has not yet found itself in the medical curriculum. The old fashioned demonstration clinic of advanced cases is no longer in great favor. In some quarters efforts are being made to introduce a psychiatric examination generally into the study of all patients even though the present complaint may not seem to involve mental derangement. There is a growing demand for the inclusion in the preclinical curriculum of introductory courses in psychology or psychobiology.

Some years ago there was a widespread feeling that practice in the eye, ear, nose, and throat fields should be reserved for specialists and that therefore they should not be included in the undergraduate curriculum. They were to be "kicked upstairs into the graduate school." This process has been carried so far that many recent graduates do not know how to make an examination sufficient to enable them to determine whether a

not the patient needs to be referred to a specialist. The schools should more clearly define their responsibilities in this field.

Few schools are giving adequate attention to instruction in physical therapy. The great benefits which may be derived from this form of treatment have been clearly demonstrated since the war. Every physician should be familiar with the indications for physical therapy and with the results which may be attained by its use.

Report of the Council on Scientific Assembly

Dr. Irvin Abell, Chairman, presented the report of the Council on Scientific Assembly, which was referred to the Reference Committee on Sections and Section Work.

Report of Committee to Propose Amendments to By-Laws Providing for Fitting Recognition to Fellows Rendering Distinguished Service in Science and Art of Medicine

Dr. H. H. Shoulders, Chairman, presented the following report of the Committee to Propose Amendments to By-Laws Providing for Fitting Recognition to Fellows Rendering Distinguished Service in Science and Art of Medicine, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Pursuant to the provisions of a resolution adopted by the House of Delegates at the Kansas City session in 1936 a committee was appointed by the Speaker of the House, composed of Drs. J. W. Ames, Colorado; Grant C. Madill, New York; J. D. Brook, Michigan; J. F. Hassig, Kansas, and H. H. Shoulders, Tennessee, as chairman.

Your committee submits the following as a report of its activities:

Much of the work of the committee has been done by correspondence. As a result of the exchange of ideas some fairly definite conclusions were arrived at. Final considerations were given the matter in a meeting of the committee held in Atlantic City, Sunday evening, June 6.

Our interpretation of the provisions of the resolution creating the committee is that our duties are twofold: First, to consider the proprieties and wisdom of creating some means by which the distinguished services of Fellows may be recognized in a fitting manner other than by election to office, and, secondly, in the event of affirmative conclusions, to prepare suitable amendments to the By-Laws and present them for the consideration of the House of Delegates.

It is the unanimous opinion of the committee that such amendments should be enacted by the House and your committee has prepared some amendments to the By-Laws and submits them as a part of its report.

In this connection it should be stated that it was the duty of your committee to consider this matter in association with the Judicial Council. By correspondence the Chairman of the Judicial Council has been kept in touch with the activities of the committee and has given it every cooperation in the way of wise counsel and advice. At the meeting held in Atlantic City the evening of June 6, the Judicial Council participated in the deliberations of the committee.

PROPOSED AMENDMENTS TO BY-LAWS

Your committee submits the following resolutions proposing amendments to the By-Laws to create a Committee on Distinguished Service Awards and prescribe its duties and to create a distinguished service award:

Resolved, By the House of Delegates of the American Medical Association that the By-Laws of the Association be amended by the addition of a new chapter, Chapter XI, to follow Chapter X, as follows:

CHAPTER XI.—COMMITTEE ON DISTINGUISHED SERVICE AWARDS

SECTION 1. There is hereby created a special committee to be known as the "Committee on Distinguished Service Awards of the American Medical Association."

This Committee shall consist of five members and shall serve for a period of three years, except the first committee, two of which shall be appointed for three years, two for two years and one for one year.

Nomination for the Award may be made by any Fellow of the Association, provided the nomination is made in a manner prescribed by the Committee and not less than two months in advance of the next regular annual session of the Association.

SEC. 2. DUTIES AND POWERS OF THE COMMITTEE ON AWARDS. The Committee on Awards shall make its own rules of procedure not in con-

flict with these by-laws with respect to the performance of its duties, subject to the approval of the House of Delegates.

It shall consider the eligibility of nominees for the Distinguished Service Award of the American Medical Association on the basis of meritorious services in the science and art of medicine and shall submit its findings and recommendations to the Board of Trustees, annually, within a time limit fixed by the Board of Trustees.

In the event that more than five nominations are received, the Committee shall select therefrom a list of not more than five to be submitted to the Board of Trustees together with a brief statement of its findings with reference to each.

The present chapters XI, XII, XIII, XIV, XV, XVI, XVII, XVIII and XIX shall then become chapters XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX and XX respectively.

Resolved, By the House of Delegates of the American Medical Association, that Chapter VI of the By-Laws be amended by the addition of a new section after section 4 as follows:

SEC. 5. TO ESTABLISH A DISTINGUISHED SERVICE AWARD OF THE AMERICAN MEDICAL ASSOCIATION. The Board of Trustees shall create and establish an award to be known as the Distinguished Service Award of the American Medical Association, which shall consist of a medal and a citation.

One Fellow of the Association shall be eligible to receive the award each year and shall be selected in a manner prescribed in these By-Laws.

The Board of Trustees shall consider the merits of nominees for the award recommended by the Committee on Distinguished Service Awards and shall select from the list not more than three Fellows to be balloted on by the House of Delegates. The Board of Trustees shall submit the list of nominees so selected to the House of Delegates for consideration, together with a brief statement of the findings of the Committee on Awards with respect to each nominee.

The House of Delegates shall select the recipient of the award from the list of nominees submitted by the Board of Trustees. The selection shall be by ballot in the same manner as officers are elected. The vote shall be taken immediately after the nominees are placed before the House by the Board of Trustees.

The Board of Trustees is charged with the duty of having prepared a suitable medal and citation each year, and is further charged with the duty of fixing the time and method of presentation.

Report of Committee to Study Contraceptive Practices and Related Problems

Dr. Carl H. Davis, Chairman, submitted by title the report of the Committee to Study Contraceptive Practices and Related Problems, which the Speaker declared would be discussed at the Tuesday afternoon Executive Session of the House.

Preliminary Report of Committee to Study Problems of Motor Vehicle Accidents

Dr. Herman A. Heise, Chairman, presented the following report of the Committee to Study Problems of Motor Vehicle Accidents, which was referred to the Reference Committee on Miscellaneous Business:

At the annual session of the American Medical Association held at Kansas City in 1936, the appointment of a Committee to Study Problems of Motor Vehicle Accidents was authorized by the House of Delegates, and the Board of Trustees was instructed to appoint the committee as now constituted. The Committee met in the Board of Trustees room in the American Medical Association building in Chicago at 10 a. m., March 19, 1937. Members of the Committee present were Dr. Herman A. Heise, Milwaukee, chairman; Dr. Burt R. Shurly, Detroit; Dr. Thomas A. McGoldrick, Brooklyn, and Dr. C. W. Roberts, Atlanta, Ga. Others in attendance were Mr. Richard Thrush, Assistant Director of First Aid of the American Red Cross in place of Dr. Cary T. Grayson, member of the committee, who was unable to be present; Mr. Sidney Williams of the National Safety Council, who had been invited by Dr. West to attend the meeting; Dr. Austin A. Hayden, Chicago, a member of the Board of Trustees of the American Medical Association; Dr. Morris Fishbein, Editor of THE JOURNAL, and Dr. Olin West, Secretary of the American Medical Association.

Dr. West opened the meeting by reading the following resolution on the appointment of a Committee to Study Problems of Motor Vehicle Accidents:

WHEREAS, The street is a battlefield, and thousands of our citizens are killed and disabled by reckless, incompetent and physically disqualified individuals; and

WHEREAS, The medical profession has stood for centuries past for the safeguarding of life and the prevention of injury; therefore be it

Resolved, That a committee of five be appointed by the President to survey and study the problems of motor vehicle accidents and injuries therefrom, and report to the House of Delegates; and be it

Resolved, That an appropriation sufficient to cover necessary expenses be provided for the study.

IMPORTANCE OF TRAFFIC ACCIDENTS

The committee agreed that we can continuously study the entire problem of traffic safety and give our support both as doctors of medicine and as individuals to every sound effort being made for safer roads, safer automobiles, driver education and better legal regulations and their enforcement. However, our present study should be directed particularly to a consideration of those physical and mental defects which account as contributing factors in unsafe driving. The importance of our problem can be better comprehended when we realize that motor vehicle accidents are the principal cause of fatal accidents in the age group of 5 to 64 and that, if the present rate of slaughter continues, one out of every twenty persons in the United States will be injured or killed in a motor vehicle accident within the next five years. An even more startling prophecy is that unless some drastic means of combating traffic accidents is instituted, two out of every three children now living will be injured in a motor vehicle accident in his lifetime.

DRIVER'S LICENSE LAWS

In most states no provision is made for the furnishing of evidence of physical or mental fitness of motor vehicle drivers. This condition is particularly deplorable since the National Safety Council has made available to all states a model driver's license code.

The importance of adequate driver's license laws is shown by a nine years trial. In this time, states having a standard license law have decreased vehicle death rates by an average of 20 per cent, while all other groups of states have increased their death rates, some more than 30 per cent. The committee recommends the adoption of the uniform driver's license law by all states, since this would be an additional factor in traffic safety and would not only give the states some control over the driver with physical and mental defects but would be of additional value in collecting records of the chronic law violators, the reckless, and the "accident-prone." Persons having bad records would be examined for physical, mental or psychologic abnormalities with a view toward correction or possible compensation for the deficiencies, or if this is not possible licenses may be revoked.

EDUCATION IN TRAFFIC SAFETY

The Committee recommends that the American Medical Association sponsor a campaign of education, keeping before the public the importance of physical and mental factors in accidents, including the influence of fatigue, ill health, disturbed vision or hearing, the effect of drugs, carbon monoxide, alcohol and the like. Incidentally, the almost indefinable subject of courtesy appears to be a factor in motor vehicle accidents. The control of a powerful instrument apparently inflates the ego of some otherwise meek individuals to the extent that they lose their appreciation of the rights of others.

ALCOHOL AND ACCIDENTS

The relationship of alcohol to traffic accidents demands further study. It is a surprising fact that the excess in the number of accidents over the expected number as calculated from traffic volume corresponds to the peaks in alcohol accidents as confirmed by chemical examination.

MEDICOLEGAL APPLICATION OF CHEMICAL
TESTS FOR ALCOHOL

Since it is impossible to diagnose drunkenness adequately—drunkenness from the symptoms alone—it is important that the chemical observation of the blood, urine, saliva or breath for alcohol be used to confirm obvious intoxication. The Committee on the Driver of the National Safety Council has agreed that 0.15 per cent or more of alcohol by weight in body fluids is associated with mental and/or physical inferiority and that this figure is therefore valuable in legal cases. It must be understood, however, that much lower levels of alcohol are associated with definite impairment of judgment and particularly of self criticism. Also the attitude of this committee on the subject of alcohol concerns only traffic safety, and therefore drinking is considered only from the standpoint of time and place.

RED CROSS HIGHWAY FIRST-AID STATIONS

The committee wishes to congratulate the American Red Cross for its establishment of Highway First-Aid Stations. This is not only a life-saving measure but is apparently decreasing the numbers of accidents by making drivers conscious of the danger of carelessness.

RECOMMENDATIONS FOR FURTHER STUDY

It is recommended that hospitals aid in the investigation of accident causes from the medical standpoint and that the American Medical Association sponsor a symposium on the various phases of traffic accidents, the results of investigations to be presented at the 1938 session of the American Medical Association. Recommended subjects for further study are Physical and Mental Defects as Factors in Traffic Accidents and Effect of Drugs, Carbon Monoxide, Alcohol, Fatigue, and the like.

Reports of Special Committees

The reports of the Committee to Study Air Conditioning, the Committee on Asphyxia and the Committees on Scientific and Therapeutic Research, as submitted in the addenda to the Report of the Board of Trustees, were referred by the Speaker to the Reference Committee on Reports of Board of Trustees and Secretary.

Report of the Committee on Medicolegal
Blood Grouping Tests

The following report of the Committee on Medicolegal Blood Grouping Tests was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

To the Members of the House of Delegates of the American Medical Association:

The purpose of this committee was to report on the reliability of blood grouping tests when applied in medicolegal cases for the exclusion of parentage and in criminal cases for the individual identification of blood and other stains, with special reference to further legislation relating to blood grouping tests for excluding parentage. The report now submitted contains the conclusions and recommendations of the committee, based on a review of the literature and experiences of its members.

It was found advisable to consider the application of the tests for the exclusion of parentage and the examination of stains separately. It is also necessary to consider separately the classic four blood groups O, A, B and AB, discovered in 1901-1902, and the three types M, N and MN, found in 1928.

NOMENCLATURE

Before proceeding with the question of the forensic application of the tests, a few statements concerning the nomenclature are in order.

The Four Blood Groups.—Three different methods of designating the four groups are in use; namely, the Moss, the Jansky and the International nomenclatures. The relationship between the various designations of the groups and composition of the blood is given in table 1. The existence of two systems of designation by numbers has resulted in confusion on many occasions and has occasionally been responsible for transfusion accidents. Hence the Health Committee of the League of Nations has recommended the adoption of the International Nomenclature, which is based on the agglutinin content of the red blood cells. Practically all scientific and many medical publications use this nomenclature exclusively, and the committee recommends its general use also in hospitals for blood transfusions and in reporting results of blood grouping tests to courts in forensic cases.

The M-N Types.—Depending on the presence or absence of the properties M and N in the red blood cells, three types of human individuals have been identified; namely, type M (individuals possessing agglutinin M but not agglutinin N), type N (individuals possessing agglutinin N only), and type MN (individuals possessing both agglutinin M and N). Individuals lacking both agglutinins M and N do not exist.

To avoid confusion between the types M, N and MN and the blood groups O, A, B and AB the committee recommends that the term "group" be used only when referring to the latter and that the term "type" be used when referring to the more recently discovered properties M and N.

APPLICATION TO THE BLOOD GROUPING TESTS FOR
EXCLUSION OF PARENTAGE

The development of the particular aspect of blood grouping tests as used for the exclusion of parentage falls naturally into two periods, namely, that from 1910 to 1930, in which interest was focused exclusively on the four blood groups, and that from 1930 to date, which has witnessed the application of the three M-N types.

TABLE 1.—Classification and Composition of the Blood Groups

International Nomenclature	Jansky Numbering	Moss Numbering	Cells (Agglutinogens)	Serum (Agglutinins)
O	I	IV	—	α and β
A	II	II	A	β
B	III	III	B	α
AB	IV	I	A and B	—

Application of the Four Blood Groups.—Ottenberg and Epstein in 1908 first suggested the hereditary nature of the blood groups, but their studies were limited to a few families. To von Dungern and Hirsfeld, who made the first extensive study of the heredity of the blood groups in 1910, and to Bernstein, who in 1925 evolved the theory of heredity now accepted by the investigators in the field, belongs the credit for the discovery of the mechanism of the inheritance of the blood groups.

According to Bernstein's theory, the blood groups are inherited by means of three allelomorphous genes, A, B and O. Accordingly, there exist six genotypes, corresponding to the four blood groups, as is shown in table 2. From this theory it can be readily deduced to what groups the children may belong when the groups of the parents are known. Table 3 presents the inheritance of the blood groups under the Bernstein theory.

Table 3 may be summarized in two laws of heredity: 1. The agglutinogens A and B cannot appear in the blood of a child unless present in the blood of one or both parents (matings 1-6 in table 3). This is also known as the law of von Dungern and Hirsfeld. 2. Individuals of groups AB cannot have chil-

TABLE 2.—Bernstein's Theory of the Heredity of the Blood Groups

Phenotype*	Genotype*
Group O	OO
Group A	AA, AO
Group B	BB, BO
Group AB	AB

* Genotype refers to the genetic constitution; this depends chiefly on the genes. Phenotype refers to the actual makeup of the individual; it is determined by the interaction of heredity and environment. In the case of the blood groups, there is no serologic difference between individuals of genotypes AO and AA or genotypes BB and BO, since genes A and B are dominant over gene O.

dren of group O, and group O individuals cannot have group AB children (matings 7-10). This is known as the Bernstein law, since it is the direct result of his theory of the inheritance of the blood groups.

A survey of the literature shows that, in a series of more than 10,000 families with 20,000 children which were studied by a number of investigators from 1910 up to present time, no exceptions to the first law of heredity have been established. Hence the committee feels safe in recommending the application of this rule without reservation.

With regard to Bernstein's law, a series of 4,000 group O mothers with their 5,000 children have been examined, and not one of the children was found to belong to group AB. In addition, more than 600 group AB mothers with almost 1,000 children have been examined and in only one case has there been what seems to be a real exception to Bernstein's theory. In this particular case, reported by Haselhorst and Lauer, the mother belonged to group AB and the child to group O. Therefore the committee recommends that Bernstein's law be applied in paternity proceedings and other cases of disputed parentage

1. Allelomorphous genes determine differences in particular characteristics and are situated on corresponding loci of a homologous pair of chromosomes.

with the following reservation: In cases in which the supposed parent belongs to group AB and the child to group O, or vice versa, it should be stated merely that parentage is extremely unlikely or that parentage is excluded with a high probability, bordering on certainty.

A number of suggestions have been offered to account for the exception reported by Haselhorst and Lauer. Levine attempted to explain it on a genetic basis, attributing the phenomenon to nondisjunction.² Another possible explanation, perhaps, is a serologic one. Thus, Lauer reports that the mother in his case belonged to subgroup A₂B. Hence the child, if it belonged to group A, would have to belong to the more weakly reacting subgroup A₂, unless the father belonged to subgroup A₁ or A₂B.

Application of the Properties M and N in Cases of Disputed Parentage.—As Landsteiner and Levine have demonstrated, the three M-N types are transmitted by means of two allelomorphous genes, M and N (table 4). Under this theory it is evident that bloods lacking both properties M and N should not exist. The fact that, in tests performed up to the present time on almost 50,000 specimens of blood by various workers in the

TABLE 3.—The Blood Groups in Parents and Children

Groups of Parents	Groups of Children Possible	Groups of Children Not Possible
1. O × O	O	A, B, AB
2. O × A	O, A	B, AB
3. O × B	O, B	A, AB
4. A × A	O, A	B, AB
5. A × B	O, A, B, AB	None
6. B × B	O, B	A, AB
7. O × AB	A, B	O, AB
8. A × AB	A, B, AB	O
9. B × AB	A, B, AB	O
10. AB × AB	A, B, AB	O

TABLE 4.—Mechanism of Transmission of the M-N Types

Phenotype	Genotype
Type M	MM
Type N	NN
Type MN	MN

field, not one individual was found lacking both M and N is strong evidence in support of this theory.

From this theory it can easily be predicted to what types the children must belong if the types of the parents are known (table 5). Table 5 can be summarized in two laws of heredity: 1. The agglutinogens M and N cannot appear in the blood of a child unless present in the blood of one or both parents. 2. A type M parent cannot have a type N child, and a type N parent cannot have a type M child, regardless of the type of the second parent.

These two laws of heredity have been tested by a number of independent investigators. In a series of well over 1,000 families with almost 3,000 children only eight apparent exceptions were found, each of which can be explained by illegitimacy. In addition, to rule out the possibility of illegitimacy, special studies

TABLE 5.—Heredity of the Agglutinogens M and N

Types of Parents	Per Cent of Children of Types		
	MN	M	N
MN × MN	50	25	25
MN × N	50	0	50
MN × M	50	50	0
M × N	100	0	0
M × M	0	100	0
N × N	0	0	100

on mothers and children have been made, and in a series of more than 7,000 such combinations examined up to the year 1935 not a single exception to the second law of heredity was found. Therefore the committee believes that the application of the M-N types in cases of disputed parentage can be recommended without qualification.

The subgroups of groups A and AB have also been found to be hereditary and a plausible theory to explain the method of transmission has been proposed. However, there have been apparent exceptions to

2. When in the reduction division any pair of homologous chromosomes fails to separate, this is known as "nondisjunction."

the theory in the few reports published up to now. Moreover, the technic of determining the subgroups offers certain difficulties. Therefore the committee feels that the application of the subgroups of A and AB in cases of disputed parentage is not established well enough to be used at the present time as a routine procedure.

THE BLOOD TESTS IN THE COURTS

The classic blood group tests have been applied in European countries since 1924 in cases of disputed parentage, and as early as 1929 Schiff was able to compile a series of more than 6,000 cases in which the tests had been used in paternity proceedings (table 6). Incidentally, it is of interest to point out that when

TABLE 6.—Blood Group Tests in European Courts Before 1930 (After Levine*)

Country	Number of Cases	Paternity Exclusions	Exclusion Percentage
Germany (Schiff).....	4,519	353	7.8
Austria (Werkgartner).....	700	63	9.0
Danzig (Puschel).....	600	39	6.5
Denmark (Sand).....	50	6	12.0
Denmark (Thomsen).....	500	64	12.8
Sweden (Wolff).....	259	17	6.6
Norway			
Switzerland cited by Schiff.....	37	4	10.8
Lithuania			
Totals.....	6,665	546	8.2

* Am. J. Police Sc. 3:157, 1932 (modified after F. Schiff).

the Bernstein theory is applied in paternity disputes, the chance of excluding an innocent man is approximately one out of six. Since 8.2 per cent of exclusions were obtained on the average (table 6), 8.2×6 , or 49.2 per cent, that is, almost half of the men who denied the charge of parentage, were actually innocent of it.

In countries other than those listed in the table, blood group tests were applied only sporadically until recently. In 1930 the subject received considerable publicity in the United States, when the tests served to solve a hospital case in which two infants were accidentally interchanged before being taken home from a maternity hospital in Chicago. In 1933 the tests came to the fore again in this country, when a falsely accused man was exonerated in Connecticut. In 1934 a similar case occurred in Pennsylvania. In that year impetus was given to the subject in this country by a decision rendered by Justice Meier Steinbrink of the Supreme Court of New York State granting an application for a blood grouping test in a case of disputed paternity. His enlightened decision was reversed, however, by the Appellate Division on the ground that there was no statutory authority for the order. This defect was almost immediately remedied, when laws were enacted in 1935 authorizing courts in New York State to order blood grouping tests in cases of disputed parentage and in civil suits where relevant to issues, and to receive the results in evidence. Shortly thereafter similar laws were enacted in Wisconsin, and there are now bills pending before the legislatures of Montana, California and New Jersey.

It is common knowledge that the tests are of value only to exclude and not to prove parentage. Objection has been raised that if the tests failed to exclude an accused man they might serve unduly to prejudice the judge and more particularly the jury against him. With that in mind, the drafters of the Wisconsin law inserted a provision which prohibits the introduction of the results of the blood tests in evidence except when they exclude the man accused. In 1936 the New York State laws were amended by the inclusion of similar provisions.

It has been impossible to obtain accurate statistics of the number of cases in which blood group tests have been performed for courts here and abroad. All that can be done is to summarize the reports that have appeared in the medical literature. In table 6 is presented a survey of the tests performed up to 1930, and in table 7 is given a summary of the reports that have appeared since the application of the properties M and N has been introduced in paternity proceedings. It will be seen that the chance of excluding paternity has almost been doubled by the M-N tests.

The data given in tables 6 and 7 concerning blood tests in Austria may be supplemented by the following information,

which was forwarded to us by Dr. Josef Franz Holzer in response to a questionnaire sent to him. Dr. Holzer informs us that blood grouping was first introduced in civil and criminal courts of Austria in cases of disputed parentage as early as 1926 in Vienna and Graz, and in 1927 in Innsbruck also. The M-N tests were introduced in Innsbruck in 1932 and in Vienna in November 1933. Since 1930 the blood tests have been used in almost every paternity case at least in Vienna, and there the number of tests performed number many thousands. In Graz during the period 1926-1936 there were 1,250 paternity cases in which the tests for A and B were used, in 418 of which typing for M and N was also performed. In Innsbruck the cases number from forty to fifty every year.

It may be of interest to note that in certain countries the tests are rarely if ever used, no legal provisions having been made for their application. In Italy, for example, paternity research is forbidden except in cases of rape. In a personal communication for Leone Lattes, the most prominent authority on the subject in that country, he states that his experience includes only a few private cases and that he does not know of any case before their courts in which the M-N tests have been used.

In this country the majority of the tests performed for the courts have been done in New York State, as a result of the legislation adopted there. In table 8 is given a list of cases in which blood tests have been made in this country based on the experience of one of the writers (W.) and such reports as could be collected from the literature and by questionnaires. In every case, except the two given below in which the blood tests excluded a certain individual as the parent of a child, the courts accepted the conclusions as final. In one case (reported by Heise), which was tried before a jury, the man was found guilty despite the results of the blood test, because of fancied resemblance between the father of the accused man and the infant. The judge, however, set the verdict aside as being against the weight of evidence and granted a new trial. It is significant that the woman never proceeded with the new trial for the reason that, despite the fact that she and the accused man were both white, the child's features took on definite negroid characteristics as it grew older. In the second case,

TABLE 7.—Published Reports on the Use of Blood Groups and M-N Tests in European Courts Since 1930

Investigator	Country	Number of Cases	Number of Exclusions			Per Cent Exclusions
			By Tests for A & B	By Tests for M & N	By Tests for A, B, M & N Totals	
Schiff, F.: Deutsche Ztschr. f. d. ges. gerichtl. Med. 21: 404, 1933	Germany	911	69	82	151	14.7
Wolff, E., and Jonsson, B.: Acta pathol. et microbiol. Scand. 12: 131, 1935....	Sweden	600	36	38	74	11.5
Clausen, J.: Ztschr. f. Haseophysiol 4: 420, 1934....	Denmark	119	12	15	27	21.0
Routil, R.: Mitt. d. Anthrop. Gesellsch. in Wien 65: 233, 1935	Austria	129	11	10	21	16.3
Puschel, S.: Ztschr. f. Immunitätsforsch. 81: 445, 1934	Danzig	156	17	17	34	20.5
Hirsfeld, J.: Personal communication	Poland	180	9	7	16	7.2

* Figures in this column are less than the sum of the two preceding columns since, naturally, there are cases of exclusions made by both methods.

now pending on appeal before the District Court of Appeals of California, the trial court decided against the accused man, 70 years old and impotent, despite the fact that the blood tests exonerated him. On the other hand, several courts in the United States have rendered rather exhaustive and learned opinions favoring the blood tests, of which a few may be cited:

Buschel v. Manowitz 271 N. Y. Supp., 277.
Matter of Swahn 285 N. Y. Supp., 234.
State v. Damm 266 N. W. 667, 104 A. L. R. 430.
State v. Willing 6 Ohio Opinions 371.

In a number of jurisdictions the courts have ordered blood grouping tests even though there was no statute authorizing them to do so. In other jurisdictions the courts require statutory authority to order blood tests or to receive them in evidence, and the lack of proper legislation has hindered a more widespread application of the blood tests.

The committee is of the opinion that such laws should be passed in those states in which they are still required to promote the use of the tests. That such laws should be properly worded and sufficiently explicit is of considerable importance, and hence the following bill now pending before the legislature of California is cited as a model:

An act to add section 1872 to Code of Civil Procedure, relating to blood grouping tests.

The people of the State of California do enact as follows:

SECTION 1. Section 1872 is hereby added to the Code of Civil Procedure to read as follows:

1872. Wherever it shall be relevant to the prosecution or defense of an action, the court, by order, shall direct any party to the action and the child of any such party and the person involved in the controversy to submit to one or more blood grouping tests, the specimens for the purpose to be collected and the tests to be made by duly qualified physicians and under restrictions and directions, as to the court or judge shall seem proper. Whenever such test is ordered and made, the results thereof shall be receivable in evidence only where definite

blood cells alone. In cases in which there is any doubt in the mind of the examiner, the child should be reexamined at a later date when the agglutinins have appeared in the plasma. In general it may be advised that infants should not be examined until they are at least 1 month old.

With regard to the M-N tests, attention should be given to using only the most potent testing fluids, especially for property N, because of the existence of weakly reacting bloods. In general, the testing fluids used should have a minimum titer of 10 to 20. Control blood suspensions of known types M, N and MN must always be included when performing the tests. At least two, preferably three, different testing fluids of each kind should be used.

If the reactions are not clean cut, the tests should be repeated on fresh specimens of blood. If doubt continues to exist, it is essential to state that no definite conclusion can be reached.

Proper identification must be made of the individuals who present themselves for the examinations by their finger prints, signatures or photographs, or by the plaintiff. These precautions are necessary, as is evidenced by the case reported in Europe in which a man sent one of his friends as his substitute; fortunately the attempted fraud was discovered in time.

Although it may seem from the foregoing that the blood grouping tests for determining parentage are complicated and

TABLE 8.—Blood Group and M-N Tests in the Courts of the United States

Investigator	State	Court	Number of Cases	Number of Exclusions			Per Cent Exclusions
				By Tests for A & B	By Tests for M & N	Totals	
Hyman, H., and Snyder, L. H.: Ohio State Law J. 2:203, 1936	Ohio	Court of Common Pleas, Court of Domestic Relations of various counties	10	2	0	2	
Wiener, A. S.: U. S. Law Review 70:683, 1936...	New York	Special Sessions N. Y. C. (1935-1936)	115	8	5	13	11.5
	New York	Various courts * †	46	2	4†	6	13.0
Heise, H. A.: Am. J. Clin. Path. 4:400, 1934....	Pennsylvania	.....	11	1			
Hammack, R. W.: Personal communication from lawyer for defendant	California	District Court of Appeals, 2d Appellate District	11	1			
Wiener, A. S.: Am. J. M. Sc. 186:257, 1933.....	Connecticut	Court of Common Pleas, New Haven	2	1	0		
Vaughan, S. L.: Personal communication.....	New York	Children's Court, Buffalo; Supreme Court, Buffalo	20†	1	1	2	

*† Domestic Relations Court, Family Court, Children's Court, Supreme Court, in various cities of New York State; also a few private cases. In certain of these cases, more than one man was involved; in others more than one child.
† In one of these cases the supposed mother was proved not to be the real mother.
‡ M-N tests not used.

exclusion shall be established. The order for such blood grouping tests may also direct that the testimony of such experts and of the persons so examined may be taken by deposition.

TECHNIC

The persons who perform blood tests for the courts, if properly qualified, will be fully aware of the pitfalls in the technic and able to avoid them. However, it is deemed advisable to set down certain minimum requirements for the purpose of guiding the expert in rendering his report. The report to the court should consist not only of the statement of the expert's observations and interpretation but also of a brief outline of the method that has been used.

With regard to the four blood group tests, it is important to make an allowance for individual variations in the sensitivity of the red blood cells, particularly in group A and AB, in which there are two or possibly even three sorts of A agglutinogens. The receptor A₂ may be very weak in the new-born, and in subgroup A₂B may be somewhat difficult to detect even in adults. Hence it is important to be certain that the testing serums used are of highest titer. The potency of the serums should be controlled not only when they are put up in vials to be stored but also at the time of the actual test. Furthermore, controls should be made with known blood suspensions of group O and B and subgroups A₁ and A₂ in the tests. As an additional check on the results, the serum of the individuals examined must be tested against blood suspensions of known groups O, A₁, A₂ and B. This is necessary especially in order to detect rare instances of blood A₂Ba₁ which might be taken for blood of group Ba.

Control tests with serum are of little value in infants, but the group can almost invariably be determined by testing the

fraught with difficulty, one should not obtain the impression that with proper organization the method cannot be used safely. This is shown by the experience in European courts, where the method is now firmly established.

QUALIFICATION OF EXPERTS

The qualification of experts may be said to be the most important problem not only as far as blood group tests are concerned but with regard to experts in general. At the present time the expert states his qualifications to the court, which passes judgment on them. But cognizance ought to be taken of the fact that a man who is a preeminent authority in toxicology does not necessarily qualify as a serologist. Since courts may not be in a position to evaluate the special equipment of experts, the committee believes that this entire question should be reviewed and that the authority to qualify medical witnesses should not rest with the court but with some authorized medical body such as the American Medical Association.

It has often been stated, not without some justification, that one can obtain as many experts on one side of the question as on the other. This should be possible only when a question of opinion is involved. When there is a question of fact, as with the results of the blood grouping tests in a case of disputed parentage, there can be only one conclusion rendered by any number of experts in any one case, unless they are not properly qualified and have committed an error in technic, as has actually occurred in Europe (Lauer).

What can happen when untrained persons perform blood group tests for the court was recently demonstrated by two cases in a court in New York City, in which erroneous reports were submitted. In one, the expert stated that the accused man

could not be the father, since he belonged to group O and the child to group A. When the absurdity of his conclusion was pointed out to him, he excused himself by saying that he had "forgotten" to test the mother's blood. In the second case the expert stated that a certain man had been falsely accused, since he belonged to group B, the mother to group O, and the child to group A. Reexamination of the blood specimen by one of us (W.) revealed that the accused man actually belonged to group AB (subgroup A₂B with an atypical α_1 agglutinin).

EXAMINATION OF BLOOD STAINS IN FORENSIC CASES

As the examination of blood stains in forensic cases is a more difficult problem, it will not be gone into in detail in the present report. With very fresh blood, from which suspensions can be prepared, the tests for all groups and types can be done in the usual manner, which makes possible, in all, the differentiation of eighteen distinct classes of human blood. With dried blood stains, a much more difficult technic is required, and the investigator is restricted to the determination only of the four blood groups and the presence or absence of M, since with dried blood the determination of the property N and of the subgroups of A and AB is as yet unreliable. In performing absorption tests on blood stains for the agglutinogens A and B, a point to be stressed is the inclusion of tests of unstained material as a control.

In practice, group determination of old blood stains has proved of only limited value. Putrefied or decomposed blood does not yield reliable results, and even with well preserved stains the material is often insufficient. The qualified investigator, however, will refrain from making any report at all unless the reactions he obtains are absolutely clear and decisive. For the examination of blood stains, particularly, it is essential to have well trained workers, since those not thoroughly familiar with the field seem to have a tendency to offer an opinion in every case although the results may not be conclusive.

To increase the value of group determination in criminal cases, the committee recommends that the proper authorities be advised that all blood stains, whether or not they seem to be of importance, be sent to the laboratory for examination at once, while they are still fresh, and that the results be filed for future reference. Moreover, since the determination of the group rapidly becomes more difficult after death, it is recommended that the determination of the group and M-N type should be made a routine part of the postmortem examination in all cases of violent or unexplained death, whether or not there is suspicion of murder at the time.

With regard to other stains, such as semen and saliva, the same general principles apply, but here the tests are limited to the determination of the four blood groups alone.

RECOMMENDATION

On the basis of the foregoing considerations, the committee recommends that, where necessary, laws should be passed which would authorize courts to order blood grouping tests in cases of disputed paternity, and to receive the results thereof in evidence. Such laws could be modeled after those which have been passed in New York State and Wisconsin and the laws now pending before the legislatures in California and New Jersey. It is also recommended that the question of the qualification of medical experts should be reviewed.

Respectfully submitted.

LUDVIG HEKTOEN, Chairman,
KARL LANDSTEINER.
ALEXANDER S. WIENER.

NEW BUSINESS

Resolutions on the Development of a National Health Program

Dr. Samuel J. Kopetzky, New York, presented the following resolutions, which were referred to the Reference Committee on Executive Session:

WHEREAS, The house of delegates of the Medical Society of the State of New York in annual session at Rochester, 1937, adopted certain resolutions which carried instruction to its delegation to the House of Delegates of the American Medical Association; and

WHEREAS, These resolutions concern the following principles and proposals aimed the development of a national health program and the

special circumstances under which the delivery of a high quality medical care to the American people may be evolved under conditions within the framework of adopted policy of the American Medical Association; and

WHEREAS, These principles and proposals are as follows:

PRINCIPLES

1. That the health of the people is a direct concern of government, and a national public health policy directed toward all groups of the population should be formulated.

(a) In the formulation of such policy the opinions and suggestions of organized medicine should be given preference.

(b) That the House of Delegates of the American Medical Association create a group which shall formulate the principles and proposals of a national health policy to be submitted to the government.

2. That adequate medical care is an essential element of public health and local, state and federal governments need to supplement present efforts of the medical profession to provide it.

(a) That the House of Delegates of the American Medical Association establish a working definition of the term "adequate medical care" suitable for the purpose of discussing national legislation and social legislation.

3. That the problem of economic need and the problem of providing adequate medical care are not identical and may require different approaches for their solution.

(a) Principle 3 implies that the problem of providing the individual with the means of securing medical care—that is, the economic needs—and the problem of distributing medical services are not identical; that these problems of economic needs should be approached separately from those of distributing medical services to the people.

PROPOSALS

1. That the first necessary step toward the realization of the above principles is to minimize the risk of illness by increasing preventive efforts through extension of public health services, federal, state and local.

(a) That the extension of federal, state and local preventive health measures is approved, provided it meets the needs of a given situation in the opinion of the medical profession in the locality affected and provided it integrates to the greatest possible extent the private practitioner of medicine in the development of preventive health services.

2. That the immediate problem is provision of adequate medical care for the medical indigent, the costs to be met from public funds.

3. That public funds should be made available for the support of medical education and for studies, investigations and procedures for maintaining the present high standards of medical practice. This support shall have the majority opinion of organized medicine to recommend it. If this is not provided for, the provision of adequate medical care may prove impossible.

4. That public funds should be available for medical research as essential for high standards of practice in both preventive and curative medicine.

5. That public funds should be made available to hospitals that render service to the medically indigent and for laboratory diagnostic and consultative services.

(a) With the provision that these consultative and laboratory diagnostic services shall be established only in regions where the medical profession approves the need for same and after consultation with the local medical profession in the area affected.

6. That in the allocation of public funds existing private institutions should be utilized to the largest possible extent and receive support as long as their service is in accord with the above proposals.

(a) That insofar as the allocation of funds is concerned for these institutions, they should not be made on a pro rata population basis but should be limited strictly by the needs of given institutions in specified localities and the allocation should have the approval of the medical profession in the locality in which the institutions are located.

(b) That in the selection of existing institutions to which public funds may be allocated their rating and their needs shall be measured by the standards of the Council on Medical Education and Hospitals of the American Medical Association; and that no public funds should be made available to existing institutions against and contrary to the majority opinion of the medical profession in the locality in which they exist.

7. That the investigation and planning of the measures proposed and their ultimate direction should be assigned to experts.

(a) It being recommended that the various subdivisions of the American Medical Association, namely, its national, state and county components, furnish to the government on request lists of experts in their communities to carry out these principles and proposals.

(b) That the word "expert" is taken to mean a man especially qualified by experience in his specific field. Nominations of these "experts" should be by units of organized medicine. The nominations and recommendations by organized medicine should be given preferential consideration by government in making its selection.

8. That the adequate administration and supervision of the health functions of the government, as implied in the above proposals necessitates, in our opinion, a functional consolidation of all federal health and medical activities under a separate department.

9. That we who subscribe to the above principles, proposals and recommendations hold the view that compulsory health insurance does not offer a satisfactory solution on the basis of these principles and proposals and repeat our objections to its enactment in this country; therefore be it

Resolved, That the House of Delegates of the American Medical Association endorses the principles, proposals and recommendations just cited; and be it further

Resolved, That the House of Delegates authorize the formation of a committee which shall, in conformity to the above, formulate a national health policy for submission to the government, and further be empowered to confer with government agencies and also with any other medical groups so that differences in conception, definition of terms and applicability of principles and procedures may be ironed out in conference regarding those matters in the above principles and proposals which are of national scope and to the end that they may be enacted.

Resolution on Socialization of Medicine

Dr. Harold T. Low, Colorado, announced the introduction of a resolution dealing with socialization of medicine, which was referred to the Reference Committee on Executive Session.

Resolutions on the Family Physician and the School Child

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolutions, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, The family physician has labored for these many years without full recognition of his valuable services; and

WHEREAS, The various school systems of the United States depend on the family doctor for the prevention and diagnosis of disease and the protection of the public; therefore be it

Resolved, That the school boards and authorities in charge of the school systems all over our country be respectfully requested to enter and file on the index card of every school child the name and address of the chosen family doctor; and be it further

Resolved, That the designated family doctor, together with the parents or guardians of the child, be informed by the proper school authorities of any accident or illness that may befall the child in the schools of this country.

Resolution Requiring Physicians on Staffs of Accredited Hospitals to Be Members of the American Medical Association

Dr. John Z. Brown Sr., Utah, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, It has been forcibly brought to our attention that some of the celebrated hospitals of the country have on their staffs doctors of medicine who are not members of their county medical societies; and

WHEREAS, This fact is not healthful to organized medicine and is detrimental to the doctor's reputation among his colleagues, and further that such nonaffiliation may interfere with a physician's application for license by reciprocity in another state; therefore be it

Resolved, That the Utah State Medical Association disapproves such condition and, through its house of delegates, requests the House of Delegates of the American Medical Association to take similar action and urge the Council on Medical Education and Hospitals to add to its requirements for approval that doctors on the staffs of accredited hospitals should be members of the American Medical Association.

Resolutions Recommending Establishment of Council on Medical Ethics and Economics

Dr. Carl F. Vohs, Missouri, presented the following resolutions from the Missouri State Medical Association, which were referred to the Board of Trustees:

WHEREAS, There are unmistakable indications that compulsory health insurance and other phases of state medicine are among the plans of our federal government; and

WHEREAS, The public and some members of the medical profession have not sufficient knowledge of the consequences of such services; and

WHEREAS, Adequate scientific medical treatment of the sick and afflicted is our first consideration; and

WHEREAS, Such projects involve the appointment of physicians and surgeons, which should be done in accordance with the recommendations of the American Medical Association; and

WHEREAS, The state association and ultimate county unit societies have demonstrated their inability properly to discipline their members; therefore be it

Resolved, That the American Medical Association shall establish a Council on Medical Ethics and Economics for a thorough study of the entire situation and everything which it might entail and give widespread publicity to all the phases of its activities; and be it further

Resolved, That the By-Laws and regulations of the American Medical Association be so amended that this Council on Medical Ethics and Economics may also investigate alleged unethical conduct which may be brought to its attention and prosecute the apparent violations before the Judicial Council of the Association for ultimate disposition as to innocence or guilt, with either exonerations or punishment; and be it also

Resolved, That our delegates be instructed to present this action to the House of Delegates of the American Medical Association at the Atlantic City session in June 1937.

Resolutions Requesting Change of Name of Section on Obstetrics, Gynecology and Abdominal Surgery

Dr. George Gray Ward, Section on Obstetrics, Gynecology and Abdominal Surgery, presented the following resolutions, which were referred to the Reference Committee on Sections and Section Work:

WHEREAS, The Council on Medical Education and Hospitals has recently recognized Obstetrics and Gynecology as a specialty; and

WHEREAS, The Scientific Assembly provides adequately for the discussion of problems of abdominal surgery within the Section on Surgery, General and Abdominal; therefore be it

Resolved, That the Section on Obstetrics, Gynecology and Abdominal Surgery request the House of Delegates to change the name of the section to the Section on Obstetrics and Gynecology; and be it further

Resolved, That the Section on Obstetrics, Gynecology and Abdominal Surgery instruct its delegate to present this resolution to the House of Delegates at its regular meeting in 1937.

Resolution on Review of Motion Picture Films

Dr. Thomas P. Farmer, New York, presented the following resolution, which was referred to the Board of Trustees:

WHEREAS, Motion picture films are being publicly offered gratis or on a rental basis, by organizations, commercial and noncommercial, for inclusion in programs of county medical societies, accompanied in some instances by speakers; and

WHEREAS, Some of these films carry advertising matter or objectionable propaganda; and

WHEREAS, These matters have been brought to the house of delegates of the Medical Society of the State of New York and there approved and the New York delegation instructed to present the following; therefore be it

Resolved, That the House of Delegates of the American Medical Association make provision through some suitable bureau or department of its central office to review these films, classify them and through THE JOURNAL publish information anent them to the end that members and officials of component organized units of the American Medical Association be fully informed regarding such films and have some measure of guidance in selecting them for inclusion on their local programs.

Resolution on Production of Educational Films

Dr. C. A. Dukes, California, presented the following resolution, which was referred to the Board of Trustees:

WHEREAS, The public today is seeking and demanding dependable health information and knowledge; and

WHEREAS, This demand is being partly met by self-seeking, non-authentic and nonscientific sources, namely, the advertisers and venders of remedies, and self-constituted, inadequately educated cults and charlatans; and

WHEREAS, Misleading and false information is being transmitted to the public through the various avenues of publicity which constitute a very definite menace to the health welfare of the public of this nation, and, therefore, demands the concerted action of organized medicine to aid and support the physician in fulfilling his duty to the public as expressed in sections 1 and 3, Chapter IV of the Principles of Medical Ethics of the American Medical Association; and

WHEREAS, Methods and channels through which educational information is being imparted have materially changed in the past twenty-five years from the written page to the radio, and now to the motion pictures with sound effect; and

WHEREAS, Motion pictures bringing the story of medicine to the public have been used in a very limited way by the profession and by organized medicine; and

WHEREAS, The visual story of medicine in film lends itself to dramatization of great general interest and offers effective means for desirable educational work in the public's behalf, and will create an appreciation of science of medicine and of those who represent it; and

WHEREAS, Motion picture films must be of understandable, pictorial and dramatic quality that calls for the expenditure of money for scenarial writing of scripts and dialogue; and

WHEREAS, Such monies cannot be expended by individual physicians or by component medical units; and

WHEREAS, Motion picture films of a character contemplated in this resolution should be used nationally to the benefit of the public; therefore be it

Resolved, That this House of Delegates requests the Board of Trustees to give serious and immediate consideration to the production of educational films, with and without sound track, and that such films be made available for the various component state and county medical societies throughout the country for these educational purposes.

Resolution on Importance of Preventive Medicine

Dr. Terry M. Townsend, New York, presented the following resolution from the Medical Society of the State of New York, which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, The Medical Society of the State of New York in annual meeting assembled at Rochester, 1937, adopted recommendations made by its president and also resolutions originating in the Medical Society of the County of New York that during the ensuing year preventive

medicine be stressed by giving it a place on county and district branch programs and by featuring it in the *New York State Journal of Medicine* and also in addresses before lay groups wherever possible; and

WHEREAS, These recommendations were endorsed and approved by the house of delegates of the Medical Society of the State of New York and their presentation to the House of Delegates of the American Medical Association directed; therefore be it

Resolved, That the American Medical Association reiterates its stand on the importance of preventive medicine and urges on all component bodies that every effort be made to promote all features of preventive medicine, to make the same available to the public and so to feature the achievements of preventive medicine as to create a larger demand for it by the public.

Resolution on Program of Public Education

Dr. Fred Moore, Iowa, presented the following resolution from the Iowa State Medical Society, which was referred to the Board of Trustees:

WHEREAS, There is and will be continued interest on the part of the public in medical news and in various plans for provision for medical services to groups of people; and

WHEREAS, Much of the publicity of the past conveys little truth in the field of discovery and much that is misleading in the field of economics; and

WHEREAS, Much of the reaction and the attitude of the medical profession to said publicity is misunderstood by the public; and

WHEREAS, Education by publicity requires special experience and technics largely foreign to our profession; and

WHEREAS, The medical profession of this nation needs more adequate publicity and guidance in these respects; therefore be it

Resolved, By the House of Delegates of the American Medical Association that the Board of Trustees should employ additional and competent personnel to develop on a national scale a program of public education that will be designed to foster better understanding by the laity in the field of medical science and particularly better understanding by the public of its interests and the interests of the medical profession in the various sociologic and economic schemes and plans which involve provision of medical services.

Resolutions to Be Brought Up in Executive Session

Dr. W. Albert Cook, Oklahoma, submitted resolutions to be brought up in Executive Session, which were referred to the Reference Committee on Executive Session.

Resolutions from Medical Society of New Jersey

Dr. Walt P. Conaway, New Jersey, presented the following resolutions:

At the regular annual meeting of the house of delegates of the Medical Society of New Jersey on Wednesday afternoon, April 28, 1937, the following resolutions were introduced at the direction of the welfare committee and passed by the house:

RESOLUTION ON INVESTIGATION INTO CONDUCT OF MAGAZINE "HYGEIA"

The following resolution was referred to the Board of Trustees:

Resolved, That our delegates to the American Medical Association be instructed to introduce a resolution into the House of Delegates of the American Medical Association calling for an investigation into the conduct of the magazine *Hygeia*, particularly as to articles that prescribe for the laity, and into the methods employed by the business manager in circularizing the laity with literature designed at least to imply that *Hygeia* magazine will take the place of a medical adviser.

RESOLUTION ON OPPOSITION TO COPELAND FOOD AND DRUG BILL

The following resolution was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the Medical Society of New Jersey reaffirms the actions of this body of the past three years in opposition to the permissive and pernicious provisions of the Copeland Food and Drug Bill, and instructs its delegates to the approaching session of the American Medical Association to bend their efforts to develop a constructive program in the American Medical Association toward preservation of the Mandatory provisions and the distribution of responsibility of the Food and Drugs Law of 1906.

Resolutions on Clarifying Policy of the American Medical Association on Question of Group Hospitalization

Dr. C. W. Stone, Ohio, presented the following resolutions adopted by the house of delegates of the Ohio State Medical Association on April 29, 1937, which were referred to the Reference Committee on Medical Education:

WHEREAS, An increasing interest in group hospital payment plans has been demonstrated in recent months in several metropolitan centers of Ohio; and

WHEREAS, There are definite problems of direct interest to the medical profession involved in such projects; and

WHEREAS, The present policy of the Ohio State Medical Association, as established by official action of the council on Oct. 29, 1933, declares that medical service should not be included among services furnished under group hospitalization contracts; and

WHEREAS, Confusion and controversy exist with respect to a differentiation between medical services and hospital services in many group hospitalization programs; be it

Resolved, That the house of delegates of the Ohio State Medical Association this 29th day of April 1937, reaffirms the policy adopted by the council of this association on Oct. 29, 1933; and be it further

Resolved, That the house of delegates of this association respectfully requests the officials and House of Delegates of the American Medical Association to consider, at the forthcoming session of the American Medical Association at Atlantic City, the advisability of clarifying its policy on the question of group hospitalization, especially on the matter of defining and enumerating the services which should not be included because they are definitely medical services.

Resolutions on Presentation of Exhibit of the American Medical Association at San Francisco International Exposition

Dr. Elbridge J. Best, California, presented the following resolutions, which were referred to the Board of Trustees:

WHEREAS, The San Francisco International Exposition will be opened in February of 1939; and

WHEREAS, A special building will be constructed for education and science; and

WHEREAS, The Exposition management has requested the California Medical Association to appoint an advisory committee and to exercise censorship over all exhibits relating to medicine and public health; therefore be it

Resolved, That the Board of Trustees be requested to prepare a suitable exhibit representative of the American Medical Association; and be it

Resolved, That the Board of Trustees direct the Association's Director of Exhibits to cooperate with the advisory committee of the California Medical Association.

Proposed Amendments to the Principles of Medical Ethics

Dr. George Edward Follansbee, Chairman, Judicial Council, presented the following proposed amendments to the Principles of Medical Ethics, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend section 2 of article 6 of chapter III of the Principles of Medical Ethics so that only the first paragraph shall be included in that section under the heading "Conditions of Medical Practice," and that the remaining three paragraphs of that section shall be included under a section 3 with the heading "Contract Practice."

Amend the first paragraph of the new section 3 to read as follows:

SEC. 3.—By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals on the basis of a fee schedule, or for a salary or a fixed rate per capita.

In accordance with the above proposed amendments, the present section 3, article VI, under the heading "Commissions," becomes section 4, and the present section 4 under the heading "Direct Profit to Lay Groups," becomes section 5.

Proposed Amendments to the By-Laws

Dr. George Edward Follansbee, Chairman, Judicial Council, presented the following proposed amendments to the By-Laws, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws:

PROPOSED AMENDMENT TO CHAPTER XI, SECTION 1

WHEREAS, It is undesirable to carry on the membership roll and in the directory of physicians the names of members convicted of felonies; be it

Resolved, That the By-Laws, chapter XI, section 1, be amended by adding after the first sentence: "Conviction of a felony shall automatically remove a member's name from the membership roll for a period of not less than one year after the termination of punishment for the offense."

PROPOSED AMENDMENT TO CHAPTER IX, SECTION 1

Amend chapter IX, section 1, of the By-Laws by adding to the second paragraph the following sentence: "The period of time within which appeal to the Judicial Council may be taken shall be limited to the six months following the date of decision by the constituted authority of a constituent association."

PROPOSED AMENDMENTS TO CHAPTER IV, SECTIONS 1 AND 8

Amend chapter IV, section 1, last sentence to read "No member of the House of Delegates nor general officer of the Association shall be eligible for election to the office of President-Elect or Vice President."

Amend chapter IV, section 8, to read, "INSTALLATION AS PRESIDENT.—The President-Elect shall be installed as and assume the duties of President at the opening general meeting of the Scientific Assembly of the annual session following that at which he was elected."

Proposed Amendment to the Constitution

Dr. George Edward Follansbee, Chairman, Judicial Council, presented the following resolution proposing an amendment to the Constitution, article 6, section 2, which the Speaker declared may be acted on at the next annual session:

WHEREAS, The Constitution and the By-Laws refer to the election annually of a president and president-elect when in fact only a president-elect is elected; and

WHEREAS, No provision is made in the Constitution and By-Laws for a succession in office in case of death or disability of the President-Elect; be it

Resolved, That article 6, section 2, of the Constitution be amended to read, "(a) The President-Elect shall be elected annually. He shall serve as President-Elect until the annual session of the Association next ensuing after his election and shall become President on his installation in the course of that session, serving thereafter as President until the next following annual session and the installation of his successor. If the President-Elect dies, resigns, or in the judgment of the Board of Trustees confirmed by the House of Delegates is permanently disqualified for the performance of the duties of his office by any just cause, the Vice President shall become President-Elect and in due course succeed to the presidency, with all of the prerogatives and duties pertaining to that office, as fully as if elected to it in the first instance: Provided, however, that the President-Elect who is elected at the annual session of the Association in 1937 shall, notwithstanding his election as such for the period of one year only, be installed as President in the course of the session in 1938 and continue as such until the session in 1939 and the installation of his successor.

(b) A Vice President, a Secretary, a Treasurer, and a Speaker and a Vice Speaker of the House of Delegates shall be elected, each to serve for one year and until his successor is elected and installed: Provided, however, that in event of the death, resignation or removal, or of the permanent disability of the President-Elect as determined by the Board of Trustees, the Vice President shall succeed to the office of President-Elect and in due course to the office of President, notwithstanding the fact that he was in the first instance elected as Vice President for one year only."

Resolution Requesting the North Central Association of Colleges to Amend Its Manual

Dr. T. R. K. Gruber, Michigan, on behalf of the Michigan State Medical Society, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, It appears from perusal of the manual of the North Central Association of Colleges and Secondary Schools, which manual sets forth the requirements for approval under section 48 of the manual, Health Service; and

WHEREAS, The requirements mentioned above are broad and far reaching, and, in fact, set up for the use of the student body what is closely akin to state medicine; and

WHEREAS, The student body being in their formative years are being taught to utilize this type of service; and

WHEREAS, This service destroys the patient-physician relationship; and

WHEREAS, The principles set forth are already in variance with the ideas of the proper practice of medicine as set forth by the American Medical Association; be it therefore

Resolved, That the North Central Association of Colleges and Secondary Schools be requested to delete this requirement from their manual and allow each school to set up an individual service for the school, said service to be planned and executed in conjunction and with the approval of the local county medical society.

Resolution on Establishment of a Department of Public Relations

Dr. L. J. Hirschman, Michigan, in behalf of the Michigan State Medical Society, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The Congress of the United States and many state legislatures throughout the country are being prevailed on to enact systems of compulsory health insurance; and

WHEREAS, The general public is not fully aware of the deleterious effects such experiments would have on the quality of medical care, nor of the resulting economic burdens; and

WHEREAS, It is of vital concern to all persons that a complete and correct picture of the situation be immediately and universally publicized; therefore be it

Resolved, That the Michigan State Medical Society recommends that the American Medical Association consider the establishment of a Department of Public Relations whose function it shall be to engage the most expert and talented professional public relations counsel available, this Department of Public Relations to be equipped with adequate financial resources to carry on a permanent campaign of publicity and educational announcements through the most effective mediums to reach the masses of public opinion and set forth dramatically and accurately the story of medical progress and service in the United States.

Resolution on Administration of Anesthesia

Dr. Walter A. Lane, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the employment of nurses, technicians and lay individuals, excepting those registered in the active pursuit of a medical degree, as anesthetists or for the parenteral administration of drugs or serums is an encroachment on the field of medical practice, is basically illegal, unethical and should not be tolerated in the best interests of the patient.

Amendments to Constitution and By-Laws

Dr. George Edward Follansbee, Chairman, Judicial Council, resubmitted proposed amendments to the Constitution and By-Laws, approved but not adopted by the House of Delegates at the Kansas City session in 1936, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws.

The meeting recessed at 1:50 p. m. to reconvene Tuesday morning, June 8, at 9:30.

(To be continued)

REGISTRATION AT ATLANTIC CITY

The total registration at the Atlantic City session was 9,764. Below are given two summaries—one by sections and one by states:

Registration by Sections

Practice of Medicine.....	3,156
Surgery, General and Abdominal.....	1,325
Obstetrics, Gynecology and Abdominal Surgery.....	666
Ophthalmology	475
Laryngology, Otology and Rhinology.....	414
Pediatrics	536
Pharmacology and Therapeutics.....	52
Pathology and Physiology.....	275
Nervous and Mental Diseases.....	275
Dermatology and Syphilology.....	355
Preventive and Industrial Medicine and Public Health.....	211
Urology	314
Orthopedic Surgery	329
Gastro-Enterology and Proctology.....	391
Radiology	400
Miscellaneous Topics	41
Two or more sections or no section marked.....	549
Total	9,764

Registration by States

Alabama	46	New Hampshire	22
Arizona	16	New Jersey	1,184
Arkansas	24	New Mexico	3
California	151	New York	1,930
Colorado	51	North Carolina	133
Connecticut	204	North Dakota	10
Delaware	76	Ohio	438
District of Columbia.....	279	Oklahoma	39
Florida	60	Oregon	16
Georgia	76	Pennsylvania	2,373
Idaho	4	Rhode Island	44
Illinois	399	South Carolina	58
Indiana	126	South Dakota	7
Iowa	55	Tennessee	47
Kansas	29	Texas	99
Kentucky	65	Utah	5
Louisiana	47	Vermont	26
Maine	26	Virginia	180
Maryland	278	Washington	33
Massachusetts	352	West Virginia	90
Michigan	198	Wisconsin	82
Minnesota	102	Wyoming	1
Mississippi	11	Miscellaneous	117
Missouri	109	Total	9,764
Montana	5		
Nebraska	38		

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Changes in the Faculty at Yale.—Dr. Leonard Greenburg, New York, executive director of the department of industrial hygiene, New York State Department of Labor, and associate clinical professor of public health, Yale University School of Medicine, New Haven, has been promoted to professor of public health. Other promotions include:

Dr. Daniel C. Darrow, associate professor of pediatrics.
Dr. Edwin F. Gildea, associate professor of psychiatry.
Dr. Howard S. Colwell, associate professor of medicine.
Dr. Hugh M. Wilson, associate professor of radiology.
Dr. Ralph H. Jenkins, associate professor of urology.
Dr. John H. Bumstead, assistant professor of medicine.
Dr. Harry E. Klebanoff, assistant professor of medicine.
Dr. Bernhard A. Rogowski, assistant professor of neurology.
Dr. Louis S. Goodman, assistant professor of pharmacology and toxicology.
Dr. Paul H. Lavietes, assistant professor of medicine.
Ralph G. Meader, Ph.D., assistant professor of anatomy.
Dr. Herman Yarnet, assistant professor of pediatrics.

DISTRICT OF COLUMBIA

New Prize Awarded to Dr. Dowling.—The Washington Medical and Surgical Society awarded its newly established merit prize in medicine, May 22, to Dr. Harry F. Dowling, director of laboratories, George Washington University Hospital, for research on pneumonia, it is reported. The prize was established in honor of Dr. Frank E. Gibson, permanent treasurer of the society, and will be presented each year to "an outstanding figure in medicine in the city." Dr. Dowling is 32 years of age and a graduate of the George Washington University School of Medicine, class of 1931. Dr. Gibson also graduated from George Washington. He is 64 years of age. The award was presented to Dr. Dowling by Dr. Tomas Cajigas, formerly president of the society.

Society News.—At a meeting of the section on ophthalmology and otolaryngology of the Medical Society of the District of Columbia, April 16, the speakers were Drs. Eldridge S. Adams on "Present Status of Aviation Medicine in China"; Mervin C. Myerson, New York, "Petrositis," and Earle G. Breeding and Herbert H. Schoenfeld, "Report of Case of Petrositis with Recovery." In the afternoon, Dr. Myerson gave cadaver demonstrations of various operations for petrositis at Georgetown University School of Medicine. A symposium on cataract was presented before the Washington Ophthalmological Society, May 31, by Drs. Clyde A. Clapp, Baltimore; Edmund B. Spaeth, Philadelphia; Conrad Berens, New York; Robert Von der Heydt, Chicago, and Lieut. Col. James E. Ash, of the Army Medical Museum.

GEORGIA

University News.—Dr. George W. McCoy, medical director, U. S. Public Health Service, Washington, D. C., addressed the Dugas Journal Club of the University of Georgia School of Medicine, May 17, on "Relationship of Epidemiology to Public Health."

Health Department Activities.—A silver goblet was presented to Dr. Hugo Robinson, who recently retired as health commissioner of Dougherty County, at a meeting of the board of health in Albany, May 6. He had held the office since 1920. The new health officer is Dr. Thomas W. Collier, College Park. Dr. William C. Humphries has resigned as health officer of the city of Griffin and Spalding County and will return to his home in Acworth, it is reported.

ILLINOIS

Hospital News.—The new wing of the Moline Public Hospital was dedicated recently. The Rock Island County Medical Society held its meeting in the new building May 11, and Dr. Frederick M. F. Meixner, Peoria, spoke on "Treatment of Pneumonia."

Memorial Services for Dr. Gahagan.—An oil portrait of the late Dr. Henry J. Gahagan was presented to the Mercyville Sanatorium, Aurora, during memorial services in his honor May 2. Dr. Gahagan was director of the sanatorium from 1917 until his accidental death Nov. 9, 1936.

Chicago

Campaign Against Illegal Practitioners.—The Illinois State Department of Registration, in its current campaign against illegal practitioners, reports the following disposition of cases:

Louis Marinakos, 1209 South Cicero Avenue, Cicero, Ill., pleaded guilty, May 14, and was fined \$100 and costs.
M. Koltunski, 1032 North Ashland Avenue, found guilty, May 19, and fined \$100 and costs and placed on six months probation.
F. W. Ackerman, 4026 North Kimball Avenue and 4009 Bernard Street, acquitted by a jury May 17.
Otto C. Mollnhauer, 3440 West Fullerton Avenue, found guilty, June 2, and fined \$100 and costs and placed on one year's probation.
J. E. Bradley, Aero Laboratories, 1549 North Western Avenue, found guilty, May 24, and sentenced to thirty days in the county jail.

IOWA

Society News.—At a meeting of the Des Moines Academy of Medicine and the Polk County Medical Society in Des Moines, recently, Dr. Lewis M. Overton spoke on "Chronic Low Back Pain from the Orthopedic Viewpoint" and Dr. Charles Harlan Johnston, "Combined Ligation and Injection Treatment of the Varicose Great Saphenous Vein." Drs. Harold C. Black and Lester D. Powell addressed the meeting, May 25, on arthritis and regional ileitis, respectively. Dr. Harris P. Mosher, Boston, will discuss "Modern Views of the Esophagus" before the Linn County Medical Society, June 29, in Cedar Rapids.

Public Health Meeting.—The Iowa Public Health Association held its eleventh annual meeting in Des Moines, May 20-21. The speakers included Drs. Walter L. Biering, Des Moines, state health commissioner, "Extension of Health Services Through State, Local and Federal Resources"; Everett D. Plass, Iowa City, "Syphilis in Relation to Pregnancy," and Philip C. Jeans, Iowa City, "Management of Congenital Syphilis." A symposium on convalescent serum was presented by Drs. Carl F. Jordan, Paul Stephen and Lee F. Hill, all of Des Moines, and Jack V. Treynor, Council Bluffs. Dr. William Woodburn, health officer of Boone, was chosen president of the society.

LOUISIANA

State Pediatric Meeting.—Dr. Clarence H. Webb, Shreveport, was elected president of the Louisiana State Pediatric Society at its annual meeting in Monroe, April 26. Dr. Ralph J. Talbot, Monroe, was elected vice president and Dr. Ruth G. Aleman, New Orleans, reelected secretary-treasurer. At the banquet Dr. Edwin A. Socola, New Orleans, retiring president, gave an address on "The Peril of School Children from Moral Degenerates"; other speakers were Drs. Charles J. Bloom, New Orleans, on "Evaluation of Teeth in Their Relation to Pediatrics" and Stanley George Wolfe, Shreveport, "Vaccination Against Smallpox with Rivers' Cultured Virus."

New Professors in the Graduate School of Medicine.—Dr. Valentine H. Fuchs, New Orleans, has been appointed professor of otorhinolaryngology and director of the department in the Graduate School of Medicine of the Louisiana State University Medical Center, according to the Orleans Parish Medical Society Bulletin. The appointment of Dr. Henry W. E. Walther, New Orleans, as professor and head of the department of urology was also announced. Dr. Fuchs is 42 years of age. He graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1917. Dr. Walther, who is 49 years of age, graduated from the same school in 1910.

MARYLAND

University News.—Dr. Madge Thurlow Macklin, professor of histology and embryology, University of Western Ontario Medical School, London, gave the Catherine Milligan McLane Lecture at Goucher College, Baltimore, April 15; her subject was "The Inheritance of Disease and Its Relation to the Practice of Medicine."

Portrait of Dr. Winslow.—A portrait of the late Dr. Randolph Winslow, Baltimore, was presented by the Winslow family to the Medical and Chirurgical Faculty of Maryland during its recent annual meeting in Baltimore. Dr. Thomas S. Cullen made the presentation on behalf of the family. Dr. Winslow was president of the faculty in 1914. He served as a member of the House of Delegates of the American Medical Association in 1905-1906, 1911, 1913, 1916-1923, 1927-1934, and of the Judicial Council from 1915 to 1922. He was a founder of the American College of Surgeons and served at one time as president of the Baltimore City Medical Society and the Southern Surgical Association. He graduated from the University of Maryland School of Medicine and was for many years a mem-

ber of its faculty, where at the time of his death, February 27, he was emeritus professor of surgery. He once taught at the Woman's Medical College, Baltimore.

MASSACHUSETTS

Dr. Anderson Goes to University of Minnesota.—Dr. Gaylord W. Anderson, director of the division of communicable diseases, Boston, has been appointed professor and head of the department of preventive medicine and public health of the University of Minnesota School of Medicine, Minneapolis. He succeeds Dr. Kenneth F. Maxcy, who resigned to become professor of bacteriology at Johns Hopkins University School of Medicine, Baltimore. Dr. Anderson graduated from Harvard University Medical School in 1928.

MICHIGAN

Society News.—The Jackson County Medical Society was addressed in Jackson, May 18, by Dr. Raymond W. Waggoner, Ann Arbor, on epilepsy. At a meeting of the Ingham County Medical Society, Lansing, May 18, Dr. Louis M. Warfield, Milwaukee, spoke on "Nature and Treatment of Peripheral Circulatory Collapse." Dr. Frederick G. Novy, Ann Arbor, addressed the Wayne County Medical Society, Detroit, May 17, on "Fifty Years in Retrospect." He was presented with a certificate of honorary membership during the meeting. Dr. Clifford H. Keene discussed "Experiences with Prontosil and Prontylin at the University Hospital, Ann Arbor" before the Oakland County Medical Society, June 2.

Principal Causes of Death.—Ten major causes of deaths accounted for 70 per cent of the 54,777 deaths recorded in Michigan in 1936, it is reported. Heart disease led the list with a total of 10,010 deaths, an increase over the 9,606 deaths reported in 1935. Cancer occupied second place with a total of 5,543 deaths in 1936 as compared with 5,191 in 1935. Deaths by violence moved into third place, the report stated, 5,246 deaths being attributed to this cause. This total includes 1,009 deaths ascribed to heat prostration and 1,913 deaths to automobile accidents. Other leading causes of death, as they appear in the state department of health's report, are as follows: Cerebral hemorrhage, with a total of 4,175 deaths, the only major cause of death to show a decrease from 1935 figures; pneumonia, 4,096 as compared with 3,802 in 1935; nephritis, 3,038; angina and coronary disease, 2,888; tuberculosis, 2,102 deaths, an increase of fifty-eight over 1935; premature birth, 1,395, and diabetes, 1,266.

MINNESOTA

Warning Against Unlawfully Prescribing Liquor.—The Liquor Control Commissioner of Minnesota called the attention of the Minnesota State Board of Medical Examiners to violations of the state liquor control act by physicians, particularly in the twenty-eight dry counties of the state. An investigation, conducted jointly by the commissioner and the medical board, disclosed a practice among certain physicians and druggists whereby the physicians issued, with or without remuneration, hundreds of prescriptions to be used at the convenience of druggists in the sale of alcoholic liquor. Some of the prescriptions were written in blank and merely signed by the physician. Others, although calling for whisky, failed to specify the name of the person for whom they were intended. February 6, as a result of the investigation, four Minnesota physicians were reprimanded by the medical board after a hearing before that body. The medical board has issued a warning to the medical profession of Minnesota that further violations of the state liquor control act by physicians will result in prosecution and disciplinary action by the board.

MISSOURI

New Dean at Washington.—Philip A. Shaffer, Ph.D., professor of biologic chemistry and head of the department, Washington University School of Medicine, St. Louis, has been appointed dean succeeding the late Dr. W. McKim Marriott, who had resigned to take over a similar position at the University of California Medical School, San Francisco. Dr. Shaffer had been a member of the administrative committee which had been appointed following Dr. Marriott's resignation pending the selection of a new dean. Dr. Shaffer received his degree of doctor of philosophy at Harvard in 1904 and in the same year joined the faculty at Cornell University Medical College. In 1910 he became professor of biologic chemistry and head of the department at Washington and from 1915 to 1919 served as dean of the school.

Dr. Dean Receives Gold Medal.—Dr. Lee Wallace Dean, professor of otolaryngology, Washington University School of Medicine, St. Louis, was presented with the gold medal of the American Laryngological Association at its annual meeting in Atlantic City, June 1. The medal was established by the wife of the late Dr. Arthur W. De Roaldes, New Orleans, to serve as a memorial to him and is presented from time to time through the association. Dr. Dean, a former president of the association, is the fourth recipient to receive the award in about twenty-five years, it was stated. Others were Drs. D. Bryson Delavan, New York, Chevalier Jackson, Philadelphia, and Harris P. Mosher, Boston. Dr. Dean graduated from the State University of Iowa College of Medicine in 1896. He served for many years at his alma mater as professor and head of the department of otolaryngology and oral surgery and as dean of the college of medicine. In 1927 he resigned from the faculty to become associated with Washington University. He is 64 years of age.

MONTANA

Pacific Northwest Medical Meeting.—The sixteenth annual session of the Pacific Northwest Medical Association will be held at Great Falls, July 15-17, with the following guest speakers:

Dr. Anton J. Carlson, professor of physiology, University of Chicago.
Dr. Frederick C. Rodda, associate professor of pediatrics, University of Minnesota Medical School, Minneapolis, and the graduate school.
Dr. ... professor of clinical investigation in internal medicine, Medical School, Ann Arbor.
Dr. ... University of ...
Dr. ... University of Minnesota, Grad ...
Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor.

Further information may be obtained from the secretary, Dr. Clyde W. Countryman, 262 Paulsen Medical and Dental Building, Spokane, Wash.

NEW YORK

Personal.—Dr. Arthur W. Johnson, Mechanicville, was guest of honor at a testimonial dinner, April 7, given by the Saratoga County Medical Society to celebrate his completion of twenty years as coroner of the county. Speakers included Drs. William Van Doren, Mechanicville, who presided, and Walter S. McClellan, Saratoga Springs, and Edwin MacDonald Stanton, Schenectady.

Society News.—Dr. John E. Jennings, Brooklyn, addressed the Medical Society of the County of Nassau, April 27, on "Surgical Complications of Influenza." Dr. Elliott P. Joslin, Boston, addressed the Broome County Medical Society, Binghamton, April 14, on "The Treatment of Diabetes and Especially the Use of Protamine Insulin." Dr. Donald Guthrie, Sayre, Pa., discussed "Diagnosis and Treatment of Malignant Diseases of the Breast" before the Medical Society of the County of Cortland, April 16.

New York City

Personal.—Dr. Herbert S. Gasser, director of the Rockefeller Institute for Medical Research, has been elected a trustee of the Rockefeller Foundation. Dr. Willis G. Nealley was presented with a gold watch in appreciation of his twenty-five years service as medical director of Brooklyn Hospital. Dr. Joseph Jordan Eller has been made an honorary member of the Argentine Society of Dermatology.

Society News.—A symposium on pituitary basophilism was presented before the New York Endocrinological Society, May 26, by Drs. Bernard S. Oppenheimer, Solomon Silver, Irving H. Pardee and Aaron S. Blumgarten. The Medical Society of the County of Queens held a joint meeting with the Queens County Bar Association, April 27, with the following speakers: Justice Meier Steinbrink of the state supreme court on "Medical Jurisprudence as It Affects the Medical Profession"; Dr. Manel E. Marten, "Science in Crime Detection," and Max D. Steuer, New York attorney, "The Supreme Court and the President." Dr. Raphael Kurzrok discussed "Recent Advances in the Physiology of Sex and Reproduction" before the Bronx Gynecological and Obstetrical Society, May 17.

University News.—Dr. C. U. Ariens Kappers, professor of comparative neurology at the University of Amsterdam, gave an address at Long Island College of Medicine, April 7, on "The Autonomic Center of the Hypothalamus." Dr. Charles G. Kerley, emeritus professor of pediatrics, New York Polyclinic Medical School and Hospital, gave a lecture at the school, April 14, on "Making Milk Safe for Babies." A department of nursing has been established at Columbia University with full university rating and under

the direction of the faculty of medicine. Nursing education has hitherto been administered by the school of nursing of Presbyterian Hospital, with the instruction in medical and surgical subjects. Graduates will receive the degree of bachelor of science.

NORTH CAROLINA

State Medical Election.—Dr. James B. Sidbury, Wilmington, was chosen president-elect of the Medical Society of the State of North Carolina at its annual meeting in Winston-Salem, May 5, and Dr. Wingate M. Johnson, Winston-Salem, was inducted into the presidency. Dr. Thomas W. M. Long, Roanoke Rapids, is the new secretary to succeed Dr. Louis B. McBrayer, Southern Pines, who retired after many years' service. The next annual session will be held in Pinchurst, May 2-4, 1938.

Dr. Mangum Resigns as Dean.—Dr. Charles S. Mangum, dean of the University of North Carolina Medical School, Chapel Hill, has asked to be relieved of his duties, according to newspaper reports, May 28. He has held the position since 1933. Dr. Mangum, who is 66 years of age, graduated from Jefferson Medical College in 1894. Two years later he joined the faculty at North Carolina as professor of physiology and materia medica. From 1900 to 1905 he served as professor of pharmacology and demonstrator of anatomy, and since 1905 as professor of anatomy.

OHIO

Outbreak of Spinal Meningitis.—Four deaths in four days were reported in an outbreak of spinal meningitis in Kent, according to the newspapers, May 19. The first death occurred in a youth 20 years of age, a student at the Kent State College, who became ill while working in a restaurant. The other victims were a 5 months old girl, a boy of 12 and a youth of 19, who died after becoming ill in the county jail.

OKLAHOMA

State Medical Election.—Dr. Henry K. Speed, Sayre, was named president-elect of the Oklahoma State Medical Association at its annual meeting in Tulsa, May 11, and Dr. Samuel A. McKeel, Ada, was installed as president. The next annual meeting will be held in Muskogee.

New Superintendents of Health.—Dr. James L. Adams, Hobart, has been appointed health superintendent of Kiowa County, and Dr. Harry B. Hall, Boise City, of Cimarron County. Dr. Robert M. Church, Stilwell, has been appointed to a similar position in Adair County.

PENNSYLVANIA

Hospital News.—Ground was broken for a new surgical unit to be constructed at the state tuberculosis sanatorium, Hamburg, April 27. The unit will be devoted to chest surgery and have accommodations for thirty-eight patients. The 1936 legislature appropriated \$150,000 for its erection.

Philadelphia

Memorial to Texas Physician.—A bronze tablet was placed in the interns' quarters of the Philadelphia General Hospital recently in memory of the late Dr. George E. Bethel, Galveston, Texas. The funds for the memorial were subscribed to by Texas physicians who have served as interns in the hospital, former classmates and friends. Dr. Bethel was intern and assistant chief resident from 1924 to 1926 and served as dean and professor of tropical medicine in the University of Texas School of Medicine from 1928 to 1935. He died April 17, 1935.

Dr. Bland Made Professor Emeritus.—Dr. Pascal Brooke Bland, professor of obstetrics at Jefferson Medical College, has been made professor emeritus and Dr. Norris W. Vaux, clinical professor of obstetrics, has been appointed to succeed him. Dr. Bland was born in Monocacy, Pa., in 1875 and graduated from Jefferson in 1901. The following year he joined the teaching staff of the school and, in 1925, became professor. He was formerly president of the Obstetrical Society of Philadelphia. Dr. Vaux, who is 56 years of age, graduated from the University of Pennsylvania School of Medicine in 1905.

Pittsburgh

Graduate Course.—The committee on graduate education of the Allegheny County Medical Society will offer a course on the diagnosis and treatment of syphilis, July 14, 21 and 28, under the direction of Dr. Lawrence G. Beinhauer. Instruction will be given in the technic of darkfield examination; differential diagnosis from common skin diseases; serologic

and spinal fluid evaluation and Wassermann-fastness. Lectures will outline the treatment of primary, secondary, tertiary, maternal and congenital syphilis, with instruction in the preparation and administration of all drugs currently used in treatment. Additional information may be obtained from the society, 5088 Jenkins Arcade.

WASHINGTON

Graduate Lectures.—The twenty-first annual course of medical lectures and clinics of the University of Washington will be presented July 19-23. Speakers will include:

Dr. Anton J. Carlson, professor of physiology, University of Chicago.
Dr. Hans Lissner, clinical professor of medicine, University of California Medical School, San Francisco.
Dr. William S. Middleton, professor of medicine, University of Wisconsin Medical School, Madison.
Dr. Waltman Walters, associate professor of surgery, Graduate School, University of Minnesota, Rochester-Minneapolis.

A fee of \$10 will be charged for the course. Additional information may be obtained from the extension service of the university at Seattle.

Society News.—At a meeting of the Spokane County Medical Society, May 13, in Spokane, Drs. Frederick LeMere, Medical Lake, discussed "Experiences with Insulin Shock" and George W. Pierce, San Francisco, "Reconstruction Surgery After Trauma."—The Washington State Obstetrical Association held its first semiannual meeting in Tacoma, April 13; the program was devoted to round table discussions on treatment of puerperal sepsis, contraction rings, anatomy of the bony pelvis and prenatal and postnatal care. The society was organized January 30 with Dr. Henry H. Skinner, Yakima, as president. The next meeting will be in October.—"Surgery of Congenital Defects" was the theme of the eighth annual meeting of the Tacoma Surgical Club, April 3; guest speakers were Drs. George C. Crile, Cleveland, Paul B. Magnuson, Chicago, and Gordon B. New, Rochester, Minn. Dr. Millard T. Nelsen, Tacoma, conducted a clinic on developmental anomalies of the face and neck.

WEST VIRGINIA

Dr. Van Liere Named Dean at West Virginia.—Dr. Edward J. Van Liere, since 1935 acting dean of the West Virginia University School of Medicine, Morgantown, has been appointed dean. A graduate of Harvard Medical School, class of 1920, Dr. Van Liere has been associated with West Virginia since 1922 as professor of physiology.

WYOMING

District Meeting.—The Natrona County Medical Society sponsored a district meeting in Casper, April 24-25. The house of delegates of the state medical society met during the session, since it voted in 1936 to forego its annual meeting this year to participate in the Rocky Mountain Medical Conference to be held in Denver, July 19-21. Addresses were delivered by Drs. Marshall C. Keith, Casper, secretary of the state medical society; William O. McDermott, Casper, president of the county medical society, and George P. Johnston, Cheyenne. Other speakers included:

Dr. Joseph C. Buntin, Cheyenne, Tumors of the Kidney.
Dr. Oliver E. Torkelson, Casper, Etiology of Cancer.
Dr. John R. Nilsson, Omaha, Neb., A Series of Hernia Cases.
Dr. Joseph F. Replogle, Lander, Legislative Experiences.
Dr. Joseph J. McGill, Casper, Schilling Hemogram as a Laboratory Aid in Diagnosis and Prognosis.
Dr. William Andrew Buntin, Cheyenne, Diseases of the Pituitary Gland from the Surgical Standpoint.
Dr. George M. Anderson, Cheyenne, Federal and State Endeavor in Relation to Eradication of Syphilis.

GENERAL

Examinations in Pediatrics.—The American Board of Pediatrics announces examinations will be held in the following cities:

Los Angeles, during a meeting of region IV of the American Academy of Pediatrics, in October.
Chicago, during a meeting of region III of the American Academy of Pediatrics, November 4-6.
Boston, during a meeting of region I of the American Academy of Pediatrics, November 12-13.
New Orleans, during a joint meeting of region II of the American Academy of Pediatrics and the Southern Medical Association, December 1-3.

Definite dates for these examinations will be published later.

National Health Meeting.—During the annual meeting of the National Education Association in Detroit, June 28-30, the department of school health and physical education will present a special program. Subjects to be discussed include "The Relationship of Extra-Curricular Activities to Health," "Training School Health Personnel" and "Urgent Problems in School Health Education—Venereal Disease, Alcohol and Narcotics, Traffic Safety and Sex Education." Dr. Isaac A.

Abt, professor of pediatrics, Northwestern University Medical School, Chicago, will address the dinner session Wednesday evening on "The Physician and the School Child."

International Health Congress.—The National Health Council and the World's Fair Advisory Committee on Medicine and Public Health are perfecting plans to hold an international congress on health during the New York World's Fair in 1939. The program will be related, as much as possible, to the exhibits on medicine and public health that will be on display at the fair and it is hoped that a permanent American Museum of Hygiene, similar to the German Hygiene Museum in Dresden, will be established in New York subsequently. According to the announcement, American and foreign specialists will be asked to deliver addresses on subjects of interest not only to professional groups but to the general public as well.

Airplane Company Institutes Control Measures Against Yellow Fever.—The vaccination against yellow fever of all flying personnel, not already vaccinated, of the Pan American Airways, Inc., was begun in April at the Rockefeller laboratory in Rio de Janeiro, as a control measure. Beginning May 1, the company also requires cards to be filled out for all passengers showing where they have been or have resided for the six days just prior to embarking en route to the United States. These cards are attached to the passenger list of the airplane and will be available to the quarantine officer on arrival at its destination. A recent investigation of the U. S. Public Health Service, when fifty-three insects were captured and one escaped in twenty-four of sixty-nine inspections, proved that airplanes may be considered a health hazard so far as the importation of yellow fever is concerned unless adequate control measures are instituted.

Association of Medical Women Change Name.—The Medical Women's National Association will in the future be known as the American Medical Women's Association in accordance with action taken at its annual meeting in Atlantic City, June 7. It was stated that this was in line with the policy being adopted by the organizations affiliated with the International Medical Women's Association. Dr. Mabel M. Akin, Portland, Ore., was elected president of the association. Other officers are Drs. Kate B. B. Karpeles, Washington, D. C.; Helen G. Dennis, Portland, Ore.; Florence R. Gilpin, New Orleans, vice presidents; Helen I. A. Cary, Portland, secretary, and Mary Riggs Noble, Philadelphia, treasurer. At this meeting announcement was made of a gift to the association of a large residence in Long Beach, Calif., for use of members who are suffering poor health or economic difficulties. Dr. Alice Barker-Ellsworth, Long Beach, was the donor.

Another Foundation for Medical Research.—The Dazian Foundation for Medical Research will be created and receive the bulk of his estate under the will of the late Henry Dazian, New York, it is reported. To be used for the advancement of medical or allied scientific knowledge and the establishment of fellowships, the will stipulated that the funds were to be awarded for the further education of individuals and for research and investigation by individuals or institutions not engaged for private gain or profit. The foundation is to be managed by nine members, five of whom shall be physicians: Drs. Emanuel Libman, Israel Strauss, Alexis Carrel, Philip Finkle, New York, and Harrison S. Martland, Newark, N. J. The four lay members are Alfred L. Rose, Harold Williams, Emil Friedlander and Mr. Dazian's nephew, William W. Cohen. The will directs that twenty-five years after his death the principal of the trust be distributed to such hospitals, sanatoriums or similar institutions as the board shall determine.

Society News.—The Biological Photographic Association will hold its annual meeting in Rochester, N. Y., September 23-25.—Dr. Russel H. Patterson, New York, was chosen president of the American Society of Regional Anesthesia at its meeting in New York, April 20; vice presidents are Drs. Hyman Lieber, New York; Henry S. Ruth, Philadelphia, and Brian C. Sword, New Haven, Conn., and Dr. Paul M. Wood, New York, was reelected secretary. They will assume office July 1.—Dr. John Hamilton Crawford, Brooklyn, has resigned as editor of the *Bulletin* of the American Heart Association and has been succeeded by Dr. Lucy Du Bois Porter Sutton, New York.—Dr. Isidore Friesner, New York City, was chosen president-elect of the American Otolological Society at its annual meeting, May 8, and Dr. Harris P. Mosher, Boston, was installed as president. Dr. Thomas J. Harris, New York City, was reelected secretary. The next annual meeting will be in Atlantic City.—At a meeting of the American Gynecological Society in May, Dr. Noble Sproat Heaney, Chicago, was elected president, and Dr. Richard W.

TeLinde, Baltimore, was reelected secretary.—Dr. Harold Brunn, San Francisco, was chosen president-elect of the American Association for Thoracic Surgery at its annual meeting, June 1, and Dr. Stuart W. Harrington, Rochester, Minn., was installed as president. Dr. Richard H. Meade Jr., Philadelphia, was reelected secretary. The next annual session will be held in Atlanta, Ga., the date to be determined later.—Dr. John F. Barnhill, Miami Beach, was elected president of the American Laryngological Association at its annual meeting, May 31, and Dr. James A. Babbitt, Philadelphia, was reelected secretary.—At the annual meeting of the National Tuberculosis Association, June 2, Dr. Jay A. Myers, Minneapolis, was elected president, and Dr. Charles J. Hatfield, Philadelphia, reelected secretary. The next annual meeting will be in Los Angeles, June 20-23, 1938.—Mr. James F. Ballard, Boston, was chosen president of the Medical Library Association at its annual meeting, May 24, and Miss Janet Doe, New York, was reelected secretary. The next annual session will be in Boston.—At the annual meeting of the American Academy of Pediatrics in New York, June 4, Dr. Henry F. Helmholz, Rochester, Minn., was named president-elect and Dr. Philip Van Ingen, New York, was inducted into the presidency. Dr. Clifford G. Grulee, Evanston, Ill., is secretary.—Dr. Walter R. Steiner, Hartford, Conn., was elected president of the American Association of the History of Medicine at its annual meeting in Atlantic City, May 3; Dr. Esmond R. Long, Philadelphia, vice president, and Dr. Edward J. G. Beardsley, Philadelphia, secretary, reelected. The next annual session will also be held in Atlantic City in May.—Dr. Richard H. Hutchings, Utica, N. Y., was chosen president-elect of the American Psychiatric Association at its annual meeting in Pittsburgh, May 10-14, and Dr. Ross M. Chapman, Towson, Md., was installed as president. Dr. William C. Sandy, Harrisburg, Pa., was reelected secretary.

Monument to X-Ray Martyrs.—A recent issue of *Radiography and Clinical Photography* lists the names of American x-ray martyrs that appear on a monument erected last year by the German Roentgen Society before the Roentgen Institute of St. George's Hospital, Hamburg, Germany. The monument is a four sided shaft of stone bearing on one side the following epitaph:

To the Roentgenologists, and Radiologists of all nations—doctors, physicians, chemists, technicians, laboratorians and nurses—who sacrificed their lives in the struggle against the diseases of mankind. They were heroic pioneers who made possible the successful and safe use of roentgen and radium rays in medicine.

Immortal is the Glory of the Work of These Dead.

Following is the list of Americans included in the 160 names on the monument:

Robert Abbe, New York
Frederick H. Baetjer, Baltimore
Burton E. Baker, Hartford, Conn.
John Bauer, Hartford, Conn.
Thomas J. Buchanan, Philadelphia
Eugene W. Caldwell, New York
Clarence Dally, East Orange, N. J.
Walter J. Dodd, Cambridge, Mass.
Lewis M. Early, Columbus, Ohio
William C. Egelhoff, Chicago
Elizabeth Fleischman, San Francisco
Robert Friedlander, Chicago
Wolfram C. Fuchs, Chicago
Stephen C. Glidden, Danville, Ill.
Henry Green, Hartford, Conn.
Judge Hough, New York
Mihran H. Kassabian, Philadelphia
Edmund C. Kells, New Orleans
William Krauss, Memphis, Tenn.
Louis A. Weigel, Rochester, N. Y.

John A. Lee, Brooklyn
Charles L. Leonard, Philadelphia
William C. Lyle, Lynchburg, Va.
Robert H. Machlett, New York
John McIntosh, Chicago
S. H. Monell, New York
James T. Morehouse, Newark, N. J.
Lawrie B. Morrison, Boston
Gardner Parker, Pocatontos, Iowa
John Pitkin, Buffalo
Heber Roberts, Belleville, Ill.
F. L. R. Satterlee, New York
Ira Simms, New York
William B. Snow, New York
Frank H. Sweet, Boston
Benjamin F. Thomas, Columbus, O.
Charles H. Viol, Pittsburgh
Rome V. Wagner, Chicago
Thurman Wagner, Chicago

FOREIGN

Harben Gold Medal Awarded.—The council of the British Royal Institute of Public Health has awarded the Harben Gold Medal to Sir Frederick Edward Gowland Hopkins, professor of biochemistry, University of Cambridge, according to *Science*. The medal is awarded triennially under a trust created by the late Sir Henry Harben "to the person, irrespective of nationality, who, in the opinion of the council, has rendered the most eminent services to public health."

No Yellow Fever in Hongkong.—THE JOURNAL, May 29, printed a news item reporting two cases of yellow fever in Hongkong, which was credited to the *Chicago Tribune*. We are informed by the U. S. Public Health Service that these two cases of yellow fever were incorrectly diagnosed as such by Hongkong health authorities. A postmortem examination of one of the cases which proved fatal showed the disease to be leptospirosis, an infectious jaundice which is stated to be common in the Orient. The similarity in the symptoms between leptospirosis and yellow fever was the reason for the error. The original story in the *Tribune* was an Associated Press dispatch.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 22, 1937.

The British Medical Association and the Nostrum Evil

In a memorandum submitted to the select committee of the House of Commons on Medicine Stamp Duties, the British Medical Association has reviewed its endeavors to combat the danger to public health from the unrestricted advertisement and sale of patent medicines. In the early years of the present century the association published a series of analyses of popular remedies with the object of showing their worthless nature and the trivial cost of preparations for which the makers made exaggerated claims and which they sold at exorbitant prices. In evidence submitted to the Select Committee on Patent Medicines appointed in 1912 the association advised the publication on each packet of medicine of the name and quantity of each of the constituents, the application of the Food and Drugs Acts to proprietary medicines, and the institution of legal proceedings against offenders. Pending the adoption of such a measure by the government, the association has performed a considerable amount of educational work with success by getting the more responsible newspapers and periodicals to reject objectionable or misleading advertisements.

The objections of the association to the uncontrolled advertisement and sale of patent medicines rest mainly on the dangers which arise from self diagnosis and self treatment. The lay person has not the knowledge to evaluate his symptoms and diagnose his complaint; neither can he know whether the remedy offered is that required for his individual condition. The patent medicine is offered as a stock treatment for all sorts of patients regardless of their individual peculiarities. It is also offered for a host of dissimilar conditions. Moreover, the proper treatment of disease requires early diagnosis. While the patient is taking the patent medicine he is losing valuable time. The delay is particularly serious in certain diseases. The association has therefore endeavored to secure the prohibition of the sale, in the absence of a prescription from a physician, of remedies alleged to cure or relieve Bright's disease, cancer, consumption, diabetes, epilepsy, fits, locomotor ataxia, lupus, paralysis, amenorrhea, hernia, blindness and any ailment of the auditory system.

English and German University Celebrations

In a previous letter (*THE JOURNAL*, April 18, 1936, p. 1402) was reported the refusal of the English universities and learned societies to attend the celebration of the University of Heidelberg because of the political intolerance which emptied the German universities of many of their most eminent teachers. Göttingen University is to celebrate its bicentenary June 20 and Oxford University has again refused to attend. Whether the mistake of sending invitations was again repeated this year in the case of the other English universities has not transpired. As in the case of Heidelberg, the anomaly of celebration under the circumstances has aroused criticism in the press.

The scientific journal *Nature* says that probably no university preserved so high a standard over so long a period as Göttingen. Among its professors were Haller (a Swiss), the first modern physiologist, Gauss, the eminent mathematician, astronomer and experimenter, Blumenbach, the father of anthropology, the brothers Grimm, the begetters of philology, and Henle, the founder of histology. After the war the mathematicophysical group there formed the most important scientific school in Germany. But in 1933 a change occurred. A great number of the library books were burned without any protest from the rector. In 1934 came "the clean up," when

many of the most eminent teachers were expelled. "We got rid of what was outworn and superfluous in the university," said the minister of education. It is curious to recall some of the men to whom he applied these adjectives. They included 1. Professor Bernstein, who had been on the staff for twenty-five years and was director of the Institute of Mathematical Statistics. He now holds a chair at Columbia University. 2. Professor Born, famous for his work on the quantum theory. He now holds a chair at Edinburgh. 3. Professor Courant, chief organizer of mathematical research, now professor at New York. 4. Professor Franck, who won the Nobel prize in physics. On resigning he wrote that he could not remain silent while his colleagues were being dismissed. This drew an abusive "protest" from thirty-three professors and teachers.

In all, twelve professors have been displaced, of whom five now hold chairs in America and one each at Edinburgh, Oslo and Copenhagen. The total losses to the German universities and seats of higher learning amount to 1,684 teachers expelled. In addition there are quiet resignations, which must bring the total up to 2,000. The excited and threatening atmosphere in which work is now carried on is inimical to science. It is therefore not surprising that estimates are unanimous in finding a rapid and continuous fall in quality. *Nature* concludes: "Göttingen ceased in 1933 to be a scientific center. On June 30th visitors will celebrate a unique series of losses of learning, liberty and life."

PARIS

(From Our Regular Correspondent)

May 22, 1937.

Periodic Examination of Chauffeurs

Examinations at intervals are now required of all chauffeurs of taxis and motor trucks. This ought to be extended to those who drive their own cars and to chauffeurs of private cars. Intoxication is one of the most frequent causes of accidents. There are two types of drunken drivers, the one who is a chronic alcoholic and the other a so-called Sunday drunkard, who restricts his excesses to holidays in general. To make a distinction between these two forms of intoxicated chauffeurs, the Academy of Medicine of Paris has asked that every automobilist, whether he drives his own or some one else's car, should carry a "route book" in which every accident shall be inscribed. This would be of great aid to the courts in a search for the person responsible for an accident.

A single examination for a driver's license does not suffice. A person who has been examined at the age of 20 or 25, or even 30 years, and found fit to drive may not be so ten years later. Latent or acquired syphilis may be rapidly followed by tabes or dementia paralytica. Aortitis that could not be detected when the applicant was first examined may be the cause of sudden death at the wheel later on. A chauffeur who was not an alcoholic addict when first examined may acquire this vice ten years or more after his license tests. As one grows older, both vision and hearing change; hence these should be checked up.

The periodic examination of all chauffeurs is the subject of an article by Bzowski in the Dec. 20, 1936, *Journal de médecine de Bordeaux*, in which the following order of frequency of periodic examinations is suggested: between the ages of 20 and 35 years, every five years; between 35 and 50, every three years; between 50 and 60, every two years; above 60, every year. In the case of any person who has had syphilis, the same method should be adopted as in Germany and certain French insurance companies, to consider the age of the applicant as being advanced by five years. A chauffeur 46 years of age would be considered as being 51 years old and hence subject to reexamination every two years. The finding of some physical or mental defect does not mean permanent rejection but is subject to revision after a certain period; in the case of a mitral lesion, one year.

Defects can be grouped as (1) physiologic, (2) technical or (3) psychologic. The medical examination aims to evaluate the first of these, and the severity of mechanical tests the second. For the third group, a series of psychomotor and emotion reaction tests were devised by Gamus, Netter and Binet for the examination of air pilots during the World War. The reaction time was measured by the d'Arsonval electric chronometer. The effect on the nervous system caused by a revolver shot was measured by the graphic methods employed in experimental physiology for estimating changes in cardiac and respiratory rhythm, vasomotor system and muscular twitching. Although the psychomotor reactions are reliable, the same cannot be said of the emotional reactions, which are of a more complex nature.

After every accident, a chauffeur ought to be subjected to a general medical examination and the reaction time again tested.

The administration of the Paris omnibus system employs the following tests before employing chauffeurs. Any visitor can verify the necessity of quick reflexes when a large bus twists in and out of the narrow streets in some portions of the city. In this company's tests the applicant is placed on a platform, which is furnished with all the equipment that he will find on a bus. A film is projected in front of him, which includes every possible incident and accident, such as a pedestrian trying to cross in front of the bus, or a vehicle suddenly coming out of a side street. The original feature of the film is that it is put into motion or stopped by the applicant himself when he manipulates the clutch, steering wheel and brake. The faster he runs, the more rapidly does the film turn, and vice versa. The signals to stop or start are registered on a drum under control of the examiner simultaneously with the various incidents and accidents of the film which the applicant has encountered. As a result, one obtains an accurate graph of the reactions of the applicant.

Bzowski believes that this method of examining applicants for the position of chauffeur of Paris busses ought to be extended to all persons who have occasion to run a vehicle carrying more than eight passengers as well as for all taxi chauffeurs. As to other automobilists, a minimum examination ought to include obligatory general medical examination and the psychotechnical tests after every serious accident. If these show incapacity to conduct an automobile, the medical examiner should have the right to have the driving license canceled. There are many cyclists on the routes in France and other European countries. Failure to show a red light on the rear of the machine at night is a frequent cause of fatal accidents here. Speed laws are but little enforced in France, and motorcycle policemen on the routes are few and rarely seen. Visitors to Paris and other large cities often wonder why there are not more accidents when one has the opportunity to note the speed with which automobiles, especially taxis and busses, are allowed to run.

Deficit in Social Insurance Budget for 1935

Dr. Dordives in the May 1 issue of the *Siècle médical* gives some statistics regarding the social insurance budget for 1935. Receipts were 1,188 million francs; expenditures (including 26 million turned over to the guaranty fund) were 1,253 million francs. The figures for 1936 are not yet published, but it is known that there have been a smaller number of insured during 1936, owing to the large number of unemployed. In addition, the premium rate was reduced, so that the deficit for 1936 will probably exceed that of 1935.

Familial Icterus Cured by Blood Transfusions

Recovery from familial icterus of the new-born is so rare, according to Péhu, Noel and Brochier of Lyons, that they reported a case at the March 23 meeting of the Académie de médecine de Paris. The family history was as follows: There had been five children, a girl now 7 years old in good health,

a second baby who died on the fourth day of icterus, a third child who had an intense icterus at birth, followed by a nervous syndrome (nuclear icterus) with retarded intelligence, and who died at the age of 3½ years. The fourth child also had an icterus five hours after birth. This baby recovered following three intragluteal injections of citrated blood from a universal donor. Icterus appeared at the end of the first day in the fifth child, became progressively more intense, and was accompanied by palpable enlargement of the liver and spleen. Recovery also followed the use of citrated blood from a universal donor.

BERLIN

(From Our Regular Correspondent)

May 19, 1937.

Influence of Sterilization Law on Admissions to Psychiatric Institutions

The law for the prevention of hereditarily diseased offspring (THE JOURNAL, Sept. 9, 1933, page 866) has been in effect for several years, and an investigation of its influence on the admission material of institutions for the treatment of mental disorders should be of interest. Three serious hereditary diseases are readily recognized; these are congenital feeble-mindedness, chronic alcoholism and hereditary epilepsy. In cases of any of the foregoing, relatives find it extremely difficult to prevent commitment, since so many unequivocal manifestations of these disorders are apt to occur outside the home. As to schizophrenic patients, numerically the most formidable category, it seems easiest to convince the relatives of such persons that it is a question of mental disease, the severe manifestation of which necessitates hospitalization. Milder cases, treated polyclinically, are perhaps less likely to be hospitalized. Moreover, many schizophrenic persons are for long regarded as merely psychopathic. The depressive patient offers the most difficult problem. The term "depressive" is applied to many schizophrenic patients in addition to the true depressive types. In depressive cases relatives are often loath to realize that it is a question of psychosis.

It is interesting to see how these general observations are specifically reflected in the statistics of the Munich Psychiatric Clinic. The total number of admissions has undergone no important change; it has slowly increased for patients of both sexes. If only patients of tainted heredity are considered, however, a manifest decline is observed to have taken place during 1934: among the men from 462 to 394, among the women from 560 to 436; namely, declines of from 32 to 26 per cent and from 50 to 42 per cent, respectively. In 1934, to be sure, the Eugenics Court ordered no hospitalizations. With promulgation of the new legislation the number of admissions of cases in the first named triad of disorders (feeble-mindedness, alcoholism and epilepsy) declined, then rose suddenly for both sexes in 1935; namely, from one-third to two and one-half times that of the previous year. The increase in the number of male patients continued into 1936. For schizophrenic patients the percental proportion remained unchanged. The figures for depressive patients were the most noteworthy: the number of men patients sank from sixty-nine in 1932 to twenty-nine in 1935; that is, by more than 50 per cent. The same trend was noted among women patients excepting that here the maximal figure (117) was much higher, thus reflecting the greater incidence of depressive insanity among women. Admissions of patients presenting schizophrenia, socially the most important and most frequent hereditary disorder, have on the whole not fallen off. Feeble-mindedness and alcoholism are more easily recognized than in former years. On the other hand, a greater proportion of depressive patients seemed able to elude proper hospitalization. Whether these persons remain at home or are diverted to other institutions under a false diagnosis of neurasthenia, it is impossible to say.

The German Society of Research on Circulation

The convention of the German Society of Research on Circulation was held at Bad Nauheim. Sir H. H. Dale of London first spoke on vasodepressor substances. He considered especially the rôle of histamine. This substance is liberated by nervous stimulation of the tissues and dilates the vessels of the working musculature. It is not present in free form in the blood but only in an inactive compound and it is probably contained in the leukocytes in a rudimentary form. Liberated acetylcholine has no share in the vasodilatation. It is as quickly destroyed as produced and for this reason is principally found in isolated organs. Cholinergic and adrenergic nerves must be differentiated. The vasodilator substances appear as a consequence of muscular contraction within the musculature proper. Thus far it has not been determined with certainty which substances produce a vasodilatation.

Hermann Rein, Göttingen physiologist, read a paper on epinephrine and kindred substances. Epinephrine does not circulate within the organism in as large quantities as one is inclined to concede but in much smaller measure. These small quantities of epinephrine secreted by the adrenals regulate circulation without exerting any influence on the blood pressure and guarantee an optimal distribution of blood. Each vessel may exhibit a different reaction to epinephrine. The nature of the reaction will depend on the condition of the organism; thus, for example, epinephrine will dilate the vessels in working muscles. The metabolic products elicited by muscular activity alter the vascular capability of reaction to epinephrine. The dosages of epinephrine usually employed in pharmacologic and therapeutic practice are far too high and unphysiologic. By means of a new substance, 1-para-oxyphenyl-2-methyl-ethyl-aminopropane, which represents a reduction product of epinephrine, Rein was able to maintain only the regulatory action of the latter substance without the deleterious action.

Among other papers read, Raab of Vienna discussed "The Suprarenal Glands and Angina Pectoris." Muscular exertion, mental excitement and cold are conducive to attacks of angina pectoris. This mechanism takes place by means of the elimination of epinephrine. By restriction of adrenal function the susceptibility to attacks of this sort is substantially reduced, and eventually the condition is cured. Raab accordingly subjects the adrenal glands to roentgen irradiation.

Schenk of Danzig discussed circulation of the blood at the menopause. The remission of sex hormone in old age is the occasion for a stimulation of the anterior lobe of the hypophysis; secondarily the excitation of the thyroid and adrenals thus produced results in the pathologic symptoms of the climacteric. In men there appear as characteristic changes in the voice, in sexuality and fatigability as well as complaints indicative of coronary insufficiency. Muscularly strong types are above all affected.

The New Roentgen Center

A "Roentgen Bureau" has just been established at Munich by the German Roentgen Society. It represents the realization of a long cherished ideal. The function of this center will be to build up a library collection which will cover the entire field of radiology. It will also house much helpful supplementary material and a card catalogue of works on general and specific topics related to radiology. Provision has also been made for a museum collection of radiologic and kindred apparatus to illustrate the historical development of the field. The building up and completion of the collections is in charge of the recently created Roentgen Memorial Foundation. All the work of acquisition and cataloging will be supervised by this body. The honorary officers of both library and museum are appointed by the head of the German Roentgen Society. The library and other collections are already established and in use. Ample facilities for study and reference make the material readily accessible to the research worker.

ITALY*(From Our Regular Correspondent)*

May 15, 1937.

Fracture of Neck of Femur

Professor Galeazzi, head of the Clinica Ortopedica e Traumatologica of the Milan University, in a lecture to the physicians of the army spoke on fractures of the neck of the femur. According to the speaker, healing of fractures of the neck and consolidation of the fracture with bone callus formation, with consequent functional recovery of the limb, can be attained by means of a well conducted treatment based on an exact diagnosis of the type of the fracture, of which there are four: subcapital fracture of the femur, that is, between the head and the neck; an intermedian fracture which, as a rule, is oblique, and the petrochanteric and lateral fractures. Fractures of the upper part of the femur run to the base of the neck or through the trochanter and are benign in two thirds of the cases. In the other third the fractures run through the neck and frequently are subcapital. Many surgeons resort to traction by weights in the treatment of subcervical and petrochanteric fractures. Others, believing that fractures of the neck do not heal in the elderly, leave the patient to his fate with a non-treated fracture, of which not even roentgenograms are taken. According to the speaker, satisfactory results are obtained in petrochanteric and lateral fractures at the base of the neck from continued longitudinal traction with weights. The limb is maintained in constant abduction and internal rotation. This method of treatment demands constant supervision of the surgeon and the application of technical refinements. In the treatment of intermedian and subcapital fractures, the treatment depends on the exact knowledge of the displacement of the fragments, which is obtained by the study of three roentgenograms, two of which are taken in the frontal view and the other one in the sagittal view of the neck in relation to the axis (the so-called axial roentgenogram). Intermedian fractures have a tendency to remain in insufficient consolidation. Lateral fractures heal more easily than the intermedian. Complicating pseudarthrosis in these cases, especially in the elderly, originates in insufficient blood supply to the head of the femur. The latter, according to Schmore, is not due to obliteration of the vessels of the round ligaments, from sclerosis of the vessels. It is due to occlusion of the vessels by the displacement of the fractured fragments. In order to consolidate the fracture, the perfect adjustment of the surfaces of the fractured bone is important and can be obtained by the use of a plaster cast, by the application of Whitman's method of prolonged immobilization or by direct union of the fragments. Whitman's method is based on the examination of the mechanical condition of fractures of the neck. It is of value except in the elderly and in abnormal persons, in whom it is contraindicated because of the necessary immobilization for at least six months. Modern surgeons operate in recent fractures of the neck. Fixation of the fracture by the Smith-Petersen pin, by which the surfaces of the fragments are held in contact in the correct position for as long as it is necessary to obtain consolidation, is generally preferred. Johansson's extra-articular technic for fixation of the fracture with a nail is the ideal operation in fractures of the neck, even if old, as well as in pseudarthrosis, provided there is a normal blood supply of the head of the femur and a normal head. Alterations in the segment of the head from insufficient blood supply are shown in the roentgenogram of the head by a shadow darker than that of the surrounding decalcified bone tissues. In certain favorable forms of pseudarthroses, Pauwels' subtrochanteric cuneiform osteotomy gives satisfactory results. The operation is done by placing a nail in the greater trochanter and another at the diaphysis, which serve the purpose of showing the direction of the fragments after osteotomy. The operation results in an inclination of the plane of the pseudarthrosis, with correction of the condition.

Society Reunion

The Accademia delle Scienze Mediche e Chirurgiche met recently at Naples under the chairmanship of Professor Jappelli. Professor Ora reported results of experiments to determine the efficacy of the oral administration of bismuth for the prevention of syphilis. Out of a group of thirty-five rabbits which were given a bismuth preparation (Bismutrat) orally, only seven lived long enough to show the results of the experiment. In two of the surviving rabbits syphiloma developed to the extent that spirochetes were injected, while in the other five popliteal adenopathies developed. In one rabbit, given large doses of bismuth compound for a long time, bismuth poisoning appeared and syphilitic adenopathy also developed. The speaker stated that bismuth fails to protect the animals against syphilis if it is administered by mouth, even if it is given in large doses.

Professor Repetto reported results of experimental vesical mycosis in rabbits, which were placed in three groups. A suspension of fungi was directly instilled in the bladder of the animals in the first group, injected in the renal parenchyma by the lumbar route to those of the second group and intravenously administered to those in the third group. Vesical stasis was induced from a few hours to a week after the injections. Chemical and microscopic examinations of the urine were made in all cases, and cultures with the sediment of the urine, which was withdrawn with a catheter, were prepared. Groups of animals, containing those of the first, second and third groups in the experiments, were killed on the fifteenth, thirtieth, sixtieth and ninetieth days after inoculation, respectively. In all cases the histologic examination of the bladder was made. It was found that the bladder presents resistance to the fungous infection, even if favorable conditions for the development of fungi such as the presence of vesical stasis or of injected dextrose are created. Direct inoculation of fungi to the bladder is the easiest route of infection. The intravenous and descendent renal routes, as a rule, fail to cause vesical mycosis. The anatomopathologic lesions are not diffused. As a rule, they become encapsulated and follow a process of spontaneous resolution.

Deaths

Prof. Achille Monti, professor emeritus of pathologic anatomy of the Pavia University, is dead. He was a pupil of Golgi, Kock and Weichselbaum. He wrote works on epidemic jaundice and did important work in preventing malaria in Italy, especially by improving the living conditions of the people.

General Dr. Luigi Montanari of Parma died recently in that city at the age of 104. He wrote important articles on fatigue, which were reviewed and developed by the physiologist Dr. Angel Mosso. Dr. Montanari's mind was completely lucid all through the last years of his life, during which he had the same interest in science as he had in previous years.

Marriages

CRAIG WRIGHT MUCKLE, Haverford, Pa., to Miss Christine Murdoch Kendrick of Philadelphia, June 3.

DEVEAUX BLAIR SULOUFF, New York, to Miss Marguerite Elizabeth Graybill of Roanoke, Va., May 8.

THOMAS F. HARMON, Springfield, Ill., to Miss Eleanor Virginia Colley, of Oklahoma City, May 12.

STEPHEN STOCKTON WOOLSTON to Miss Elizabeth Vaux Ingersoll, both of Philadelphia, June 5.

JAMES A. ROGERS to Miss Olivia M. Dunican, both of Rockville Centre, N. Y., June 3.

HELEN L. MILLER, New York, to Mr. Alexander F. Armstrong of Albany, June 2.

EDWIN M. BUTLER, Centerville, Miss., to Miss Redolia Davis of Atlanta, Ga., May 5.

Deaths

George Aloysius Leitner @ Piermont, N. Y.; Bellevue Hospital Medical College, New York, 1888; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association, 1925-1935; visiting surgeon to the Nyack (N. Y.) Hospital and the Rockland County Tuberculosis Hospital, Pomona Park; surgeon to the Letchworth Village, Thiells, and Rockland State Hospital, Orangeburg, and consultant to the Good Samaritan Hospital, Suffern; health officer of Hudson Valley and eight villages and townships in that area; aged 71; died, May 18, in the Harkness Pavilion of the Columbia-Presbyterian Medical Center, New York.

Edwin Albert Spies, New York; Fordham University School of Medicine, New York, 1910; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; adjunct professor of orthopedic surgery at the New York Polyclinic Medical School and Hospital; served during the World War; visiting surgeon, in charge of skeletal surgery, Morrisania City Hospital; visiting orthopedic surgeon to the Misericordia Hospital; consulting orthopedic surgeon to the Westchester Square Hospital, New York, and St. Francis Hospital, Poughkeepsie; aged 49; died, March 22, at his home in Pelham, of chronic nephritis and coronary thrombosis.

James John Quiney @ Easton, Pa.; Jefferson Medical College of Philadelphia, 1903; past president and secretary of the Northampton County Medical Society; member of the American Roentgen Ray Society, the Radiological Society of North America and the American College of Radiology; formerly health officer of Easton; chief roentgenologist to the Easton Hospital; formerly on the staff of the Warren (Pa.) Hospital; aged 55; died, March 31, of coronary sclerosis and hypertension.

George Edward Potter @ Detroit; Detroit College of Medicine, 1896; fellow of the American College of Surgeons; director of the Harper Hospital Polyclinic, 1907-1908; clinical assistant to chair of surgery, 1908-1911; clinical professor of urology, 1911-1914, and associate clinical professor of surgery, 1914-1921, Detroit College of Medicine and Surgery; on the staff of the Providence Hospital; aged 64; died, March 16, of lobar pneumonia.

Willard Eugene Smith, Wilmington, Del.; Jefferson Medical College of Philadelphia, 1899; member of the Medical Society of Delaware; formerly member of the city board of health; member of the staff of the Physicians and Surgeons Hospital, now known as the Wilmington General Hospital, of which he was formerly chairman of the medical board; aged 72; died, March 23, of cardiovascular renal disease.

Lynn Gray Taylor @ Kansas City, Mo.; Western Reserve University Medical Department, Cleveland, 1882; formerly professor of neurology at the University of Kansas School of Medicine, professor of physiology at the Western Dental College and professor of physiology at the Kansas City College of Pharmacy; aged 77; died, March 31, of thyrotoxicosis and arteriosclerosis.

Frederick Ellsworth Sutherland @ Janesville, Wis.; Chicago Homeopathic Medical College, 1903; Northwestern University Medical School, Chicago, 1908; formerly secretary of the Rock County Medical Society; served the Mercy Hospital in various capacities; aged 58; died, March 20, of bronchopneumonia, coronary sclerosis and cardiac asthma.

Edward Roberts Plank @ Carlisle, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; president and for many years a member of the board of health of Carlisle; served during the Spanish-American and World wars; aged 57; on the staff of the Carlisle Hospital, where he died, March 13, of lobar pneumonia.

James Theodore Redwine @ Wahjamega, Mich.; Beaumont Hospital Medical College, St. Louis, 1900; past president of the Tuscola County Medical Society; superintendent of the Michigan Farm Colony for Epileptics; aged 61; died, March 16, in the University Hospital, Ann Arbor, of heart disease.

Arthur William Wermuth, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Illinois State Medical Society; aged 47; on the staff of the Ravenswood Hospital, where he died, April 17, of coronary occlusion and bronchopneumonia.

John Decamp Winter, Wynne Wood, Okla.; University of Nashville (Tenn.) Medical Department, 1909; member of the Oklahoma State Medical Association; served during the

World War; aged 51; died, March 9, in the Veterans Administration Facility, Muskogee, of carcinoma of the stomach.

Joseph Shackelford Stephens ☉ Natchitoches, La.; Tulane University of Louisiana Medical Department, New Orleans, 1885; formerly member of the state board of health, and president of the parish school board; aged 76; died, March 27, of arteriosclerotic heart disease and nephritis.

Manuel Daniel Rojas y Delgado, Puerto Castilla, Honduras, Central America; Tulane University of Louisiana School of Medicine, New Orleans, 1917; fellow of the American College of Surgeons; medical superintendent for the United Fruit Company; aged 48; died, March 8, of gunshot wounds.

Arthur Foster McCormick ☉ Falls Creek, Pa.; Jefferson Medical College of Philadelphia, 1903; served during the World War; aged 59; formerly in charge of the x-ray and laboratory department of the Maple Avenue Hospital, Du Bois, where he died, March 5, of myocarditis and hypertension.

George Clark Rublee, Rochester, N. H.; University of Vermont College of Medicine, Burlington, 1906; member of the New Hampshire Medical Society; served during the World War; on the staff of the Frisbie Memorial Hospital; aged 54; died, March 31, of cerebral hemorrhage.

Earle Francis Prior, Cochituate, Mass.; Tufts College Medical School, Boston, 1924; member of the Massachusetts Medical Society; served during the World War; formerly city physician of Malden; aged 39; was found dead, March 4, of carbon monoxide poisoning.

William Milton Rathgeber, Newark, N. J.; Long Island College Hospital, Brooklyn, 1923; member of the Medical Society of New Jersey; aged 40; was found dead, March 21, in his garage at East Orange, of accidental asphyxiation due to an automobile exhaust.

John J. Wakefield, Bloomfield, Ky.; University of Louisville Medical Department, 1876; member of the Kentucky State Medical Association; aged 84; died, March 23, in St. Joseph Infirmary, Louisville, of injuries received when he was struck by an automobile.

Richard Frank Tomlinson, San Francisco; Hahnemann Medical College, San Francisco, 1900; member of the California Medical Association; fellow of the American College of Surgeons; visiting surgeon to the Children's Hospital; aged 63; died, March 13.

Harriet Mary Wiley Whitney, Ashland, O.; Laura Memorial Woman's Medical College, Cincinnati, 1897; member of the American Psychiatric Association and the New England Society of Psychiatry; aged 62; died, March 25, in a hospital at Wrentham, Mass.

William Richard Hunt ☉ Clarksville, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1884; president of the Johnson County Medical Society; formerly on the staff of the Johnson County Hospital; aged 73; died, March 30.

Augustus Henry Hayden, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1888; for many years a member of the state board of health; aged 77; died, March 29, in a local hospital, of arteriosclerosis and nephritis.

Harriet Elizabeth MacSorley, Miami, Fla.; Maryland Medical College, Baltimore, 1912; formerly a practitioner in Philadelphia; aged 56; died, March 17, in a hospital at Venice, Fla., of surgical shock, following an operation for hip reconstruction.

Max Overton Usrey, Blytheville, Ark.; Kentucky School of Medicine, Louisville, 1907; member of the Arkansas Medical Society; served during the World War; formerly city health officer; aged 54; died suddenly, March 29, of angina pectoris.

Ira Hurst ☉ Parksley, Va.; University of Virginia Department of Medicine, Charlottesville, 1904; served during the World War; aged 57; died, March 28, in the United States Marine Hospital, Baltimore, of carcinoma of the liver.

Benjamin Charles Klein, Chicago; Rush Medical College, Chicago, 1936; intern at the Hospital of St. Anthony de Padua; aged 26; died, March 27, in St. Cloud, Minn., of Addison's disease, pulmonary edema and heart disease.

George Timothy Joyce ☉ Rochester, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; aged 57; died, March 29, in St. Mary's Hospital, of coronary occlusion.

Sterling Price Rumph ☉ Baird, Texas; Memphis (Tenn.) Hospital Medical College, 1904; Jefferson Medical College of Philadelphia, 1905; county health officer; aged 57; died, March 13, in a hospital at Cisco, of heart disease.

Calvin B. West, Jamesville, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; aged 69; died, March 19, in a hospital at Syracuse, of arteriosclerotic heart disease.

Clifford Walter Sumner ☉ Granville, N. Y.; Albany (N. Y.) Medical College, 1902; served the Emma Laing Stevens Hospital in various capacities; aged 62; died, March 19, of cerebral hemorrhage.

Harry Crawford Wayble, St. Bernard, Ohio; Medical College of Ohio, Cincinnati, 1904; served during the World War; aged 56; died, March 17, in the Christ Hospital, Cincinnati, of lobar pneumonia.

Harry Herbert Postle ☉ Newark, Ohio; Starling Medical College, Columbus, 1896; served during the World War; on the staff of the Newark Hospital; aged 63; died, March 21, of coronary thrombosis.

Frank Lee Niles, Wood Ridge, N. J.; Columbia University College of Physicians and Surgeons, New York, 1914; aged 53; school physician; died, March 26, of poison, self administered.

Orville Jay Richardson, Manifest, La.; Tulane University of Louisiana Medical Department, New Orleans, 1907; aged 51; died, March 29, in the Ferriday (La.) Hospital, of heart disease.

Edgar Morris Watson, Washington, D. C.; Howard University College of Medicine, Washington, 1936; aged 25; intern at the Freedmen's Hospital, where he died, March 9, of pneumonia.

Harry Griffin Sanders, Burgin, Ky.; University of Louisville Medical Department, 1893; formerly member of the state legislature; aged 68; died, March 30, of cerebral hemorrhage.

Ernest Walter Tonkin, Niles, Mich.; Detroit College of Medicine, 1895; member of the Michigan State Medical Society; aged 66; died, March 28, of coronary thrombosis.

Melancthon Braham Snyder, Council Bluffs, Iowa; University of Michigan Homeopathic Medical School, Ann Arbor, 1887; aged 80; died, March 31, of carcinoma of the colon.

Michael Servetus Seip, Easton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1876; aged 89; died, March 18, in the Betts' Private Hospital, of senility.

Frank Burton Sanford ☉ Canton, N. Y.; Albany (N. Y.) Medical College, 1893; since 1928 health officer of the village of Canton; aged 65; died, March 4, of angina pectoris.

Caryl Fenelon Seely White, Guilford, Conn.; Yale University Medical School, New Haven, 1881; aged 80; died, March 3, of mitral regurgitation and acute nephritis.

Harlan Lewis Smith ☉ Sacramento, Calif.; Northwestern University Medical School, Chicago, 1932; aged 33; died, March 12, in the Sutter Hospital, of pneumonia.

John F. White, Leoti, Kan.; Missouri Medical College, St. Louis, 1898; county coroner; aged 79; died, March 13, in the Scott City (Kan.) Hospital, of pneumonia.

Thomas W. Smith, Eutaw, Ala.; Kentucky School of Medicine, Louisville, 1894; aged 65; was found dead in bed, March 21, of a self-inflicted bullet wound.

Emily F. Swett, Medina, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1885; aged 82; died, March 27, of chronic myocarditis and arteriosclerosis.

Andrew La Roy Randall, Pleasanton, Neb.; Northwestern University Medical School, Chicago, 1903; aged 59; died suddenly, March 14, of coronary thrombosis.

Adolphe Tircuit, New Orleans; University of Louisiana Medical Department, New Orleans, 1878; aged 84; died, March 24, of sclerotic heart disease.

John C. Stevens ☉ Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1888; aged 72; died, March 26, of hemiplegia.

Henry Davis Rothgeb, Willow Springs, Mo.; University of Louisville (Ky.) Medical Department, 1896; aged 69; died, March 29, of cerebral hemorrhage.

Edward August Renfer, Berwyn, Ill.; Hahnemann Medical College and Hospital, Chicago, 1905; aged 55; died, April 1, of coronary thrombosis.

James Ratchford Taylor, Anniston, Ala.; Atlanta (Ga.) Medical College, 1898; aged 76; died, March 12, at the Garner Hospital, of bronchopneumonia.

Paul Thomas Logue, Fairbank, Iowa; Hahnemann Medical College and Hospital, Chicago, 1897; aged 66; died, March 9, of coronary occlusion.

William F. Walker, Colwich, Kan.; Missouri Medical College, St. Louis, 1884; aged 79; died, March 30, of acute catarrhal jaundice.

Bureau of Investigation

SLIM, CORRECOL AND HAUSER POTASSIUM BROTH

Three Concoctions Exploited by Modern Health Products, Inc., and Recommended by Benjamin Gayelord Hauser, Sold Under False and Fraudulent Claims, According to Food and Drug Administration

Three concoctions, "Slim," "Correcol" and "Hauser Potassium Broth," exploited by the Modern Health Products, Inc., of Milwaukee and recommended by Benjamin Gayelord Hauser (Bureau of Investigation, *THE JOURNAL*, April 17, 1937, p. 1359), have been declared by the Food and Drug Administration misbranded and sold under false and fraudulent claims.

Hauser Potassium Broth, "the only product of its kind recommended by Benjamin Gayelord Hauser . . ." and declared to be "the triumph of two years of scientific research by Benjamin Gayelord Hauser and associated experts . . ." by

Modern Health Products, Inc., reconciled the statement that Slim contained no drugs with the fact that it did contain laxative drugs is something that perhaps only naprapath Hauser could explain.

Correcol, the third product of the trinity seized by the federal authorities, was alleged to be misbranded in that the statement on the package "Colon Food" was false and misleading, since the article was not a food, and the package bore false and fraudulent representations regarding the product's curative or therapeutic effect. According to the Food and Drug Administration's report, Correcol consisted largely of *Lallemantia royleana* (a mucilaginous weed) and a smaller quantity of karaya gum.

Correcol was advertised by Modern Health Products, Inc., as a new wonder food from the Orient for correcting constipation and was alleged to be "a simple, natural substance producing in the intestine a soft, jelly-like mass that sweeps away delayed waste, tones the muscular action and helps re-educate the colonic function back to normal." This reeducating wonder from the Orient was also approved by "the world-famous authority on dietetics," Benjamin Gayelord Hauser.



Modern Health Products, Inc., was reported by the government to consist essentially of a mixture of ground dried plant materials, including seaweed, alfalfa leaves and stems, okra, potato starch, beet leaves and rhubarb leaves. This conglomerate mixture was sold to Hauser enthusiasts as "a blessing for those health-seekers finding it difficult to secure or prepare a regular supply of fresh vegetables. To them, Hauser Potassium Broth is little short of a miracle!"

While this concoction may have been a "miracle" to the Hauser health-seekers, the Food and Drug Administration took an entirely different view, declaring that the article was misbranded and that the package bore a false and fraudulent representation regarding the curative or therapeutic effect of the product. According to the advertising, "Potassium Broth is now almost as famous as Hauser himself. . . . Family size \$2.50."

Slim, "The English Reducing Beverage," was declared adulterated and misbranded and sold under false and fraudulent claims. Slim was alleged to be adulterated in that it contained deleterious ingredients; namely, senna, bladderwrack and buckthorn bark. This product was also recommended by "food chemist" Hauser (6-ounce can, \$1).

Slim was alleged by the government to be misbranded in that a leaflet accompanying the package carried the statement: "Slim contains no drugs and is absolutely harmless." This statement, the Food and Drug Administration held, was false and misleading, since the product consisted essentially of cathartic drugs and was not absolutely harmless. Just how

The cases involved interstate shipments of 119 packages of Slim, 95 packages of Correcol, and 146 packages of Hauser Potassium Broth. The libel praying seizure and condemnation was initiated by the United States attorney for the District of Massachusetts, based on reports by the Secretary of Agriculture. On June 8, 1936, no claimant having appeared, judgment of condemnation was entered and it was ordered that the products be destroyed.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States
Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Fahrney's Liniment.—D. Fahrney & Son, Hagerstown, Md. Composition: Essentially turpentine oil and a sulfureted fatty oil. Fraudulent therapeutic claims.—[N. J. 24060; November, 1935.]

Kohler One Night Cough Syrup.—Kohler Mfg. Co., Baltimore. Composition: Morphine sulfate and cannabis (both habit-forming drugs) and another dangerous substance, an antimony compound. Fraudulent therapeutic claims.—[N. J. 24063; November, 1935.]

Navajo Indian Herbal Teas.—Navajo Industries Co., Inc., and Paul Anacker (alias Dr. Yosemite Nabona), no address given. Composition: The "asthma tea" was essentially cut, dried herbs including elder flowers and coltsfoot; the tea for hardening of the arteries was essentially cut, dried herbs including yarrow and horsetail; the one for neurasthenia was cut, dried herbs including camomile, lavender and mint; the one for stomach catarrh was cut, dried herbs including yarrow, camomile, centaury and mint; the one for stomach trouble was essentially cut, dried herbs including camomile, elder, yarrow and mint. Fraudulent therapeutic claims.—[N. J. 24049; November, 1935.]

Old Country Dia-san.—Alfred A. Hofmann, trading as the Original Old Country Remedy Co., no address given. Composition: A coarse mixture of plant material including bearberry leaves, licorice root, peppermint leaves, buchu leaves, horsetail stems, corn silk and anise seed. For Bright's disease, rheumatism, diabetes, gout, etc. Fraudulent therapeutic claims.—[N. J. 24040; November, 1935.]

Pankoka.—Pankoka Health Foods, Inc., New York. Composition: Chocolate, sweetened and flavored. For catarrh, influenza, dyspepsia, rheumatism, diabetes, tuberculosis, etc. Fraudulent therapeutic claims.—[N. J. 24041; November, 1935.]

Nunn's Black Oil Healing Compound.—Dr. Nunn's Black Oil Co., Inc., Salt Lake City. Composition: Mineral oil and a fixed oil containing a sulfur compound. For sores, scratches, colic, piles, etc. Fraudulent therapeutic claims.—[N. J. 24046; November, 1935.]

Mild-O-Line.—John F. Class, Inc., Dayton, Ohio. Composition: Essentially mineral oil and small amounts of salicylic acid and volatile oils, including those of eucalyptus and wintergreen. Not appreciably germicidal. Fraudulent therapeutic claims.—[N. J. 24057; November, 1935.]

Browns Food Lax.—Nostane Products Corp., Brooklyn. Composition: Essentially agar agar and several species of plantago seed. For "new energy and health," constipation, headaches, etc. Fraudulent therapeutic claims. Not a food, as represented.—[N. J. 24064; November, 1935.]

Correspondence

DIET AND COMMON COLDS

To the Editor:—An editorial comment published in *THE JOURNAL*, May 15, page 1718, concerning the relation of diet to common colds, may leave the impression on many readers that unwarranted views published by me in 1928 (*Science* 68:301 [Sept. 28] 1928) were again completely abandoned by 1934 (Salt Water and Health, Chicago, a privately printed pamphlet). While it is true that the specific idea of using a high fat diet as a preventive of colds was abandoned, the basic idea that nutritional edema increased, and dehydration decreased, the susceptibility to contracting colds was by no means abandoned. In fact, the conviction was expressed in 1934 that edematous states were also the basis of other manifestations of subnormal health and to date this view has not been changed.

Another impression that the comment in *THE JOURNAL* may leave is that no confirmatory evidence concerning a relation between diet or nutritional hydration and the incidence of common colds has been published by others. It must be admitted that much more evidence has been published since 1928 to support the theory of infection as an explanation of the incidence of colds, and the possibility that infection may be a complicating factor in colds was also referred to by me in 1928 (*Proc. Soc. Exper. Biol. & Med.* 25:454 [March] 1928). However, even granting that colds are now definitely proved to be caused by infection, this does not explain the observed variations in susceptibility. That diet or nutritional hydration may explain the variability in susceptibility to colds or other respiratory infections has been pointed out by McQuarrie (*J. Nutrition* 2:46 [Sept.] 1929), Higgins (*New England J. Med.* 203:145 [July 24] 1930; abstr. *THE JOURNAL*, Sept. 13, 1930, p. 826) and Paton (*Edinburgh M. J.* 39:536 [Sept.] 1932; London Letter, *THE JOURNAL*, Oct. 29, 1932, p. 1521; *Brit. M. J.* 1:738 [April 29] 1933).

I am not responsible for the specific use of my views made by Consumer's Research. Certainly the suggestion was never made that the use of fruit juices should be restricted. Even the high fat diet described in 1928 allowed about 500 calories to be derived from carbohydrates, which were intended to

prevent ketosis. This diet was abandoned in 1934 largely because the restriction of carbohydrates to about 500 calories, together with the use of liberal amounts of fat, eventually often left the experimenter with a sense of extreme fatigue. Hence I adopted a diet containing less fat and more like the "antiretention" regimen outlined by Földes (*A New Approach to Dietetic Therapy*, Boston, Richard G. Badger, 1933). However, observations made since 1934 suggest that an entirely satisfactory dietary regimen for keeping the hydration of the organism at a low level or for preventing abnormal degrees of hydration over prolonged periods still remains to be discovered.

FREDERICK HOELZEL, Chicago.

POLYSACCHARIDE TEST FOR PNEUMOCOCCUS TYPES

To the Editor:—In a recent article by Cecil (*THE JOURNAL*, February 27, p. 689) mention is made of the use of the specific polysaccharide substance of pneumococci in determining when a patient suffering from pneumococcal pneumonia had received sufficient serum, the test being negative when inadequate serum had been given.

I have been much interested in this procedure since reading the original articles on the work by Tillett and Francis in 1929 and since, especially the report of Francis (*J. Exper. Med.* 57:617 [Aug.] 1933) and that of Abernethy (*New York State J. Med.* 36:627 [April 15] 1936). I do not find the polysaccharide antigens listed in the catalogues of any biologic houses and have been told by a salesman of one such house that in actual practice the use of the skin test with the specific soluble substance of the pneumococcus in determining the amount of serum which should be given was found impracticable and unreliable.

I should like to inquire whether this is correct and whether the procedure has been used extensively as yet. I have not heard of its being used in this vicinity. Also, where can the specific polysaccharides for the different pneumococcus types be obtained?

T. F. JUDEFIND, M.D., Loma Linda, Calif.

[This letter was referred to Dr. Cecil, who replies:]

To the Editor:—The correspondent is correct when he says that at the present time polysaccharides are not being offered to the medical public by any of the biologic manufacturers. However, the Lederle Company is planning to make it and probably by next fall these various antigens for pneumococcus skin tests will be put on the market by the Lederle Company. The test has not been used extensively as yet and I believe that it requires some experience on the part of the operator in reading the reactions accurately.

RUSSELL L. CECIL, M.D., New York.

INHERITANCE OF HEMOPHILIA

To the Editor:—As the explanation of inheritance of hemophilia in *THE JOURNAL*, May 1, page 1564, does not seem quite complete, I am offering the following comment: In man, sex is determined by the X and Y chromosomes. The male has one X and one Y chromosome and the female two X chromosomes. Hemophilia is due to a gene carried in the X chromosome and is recessive to the normal. The X chromosome of the male comes from the mother and the Y chromosome from the father. Consequently, hemophilia in the male must be transmitted by the mother. Women rarely, if ever, have the disease, although normal females may transmit the gene to their sons.

GEORGE HAINES, PH.D., Washington, D. C.
Office of Experiment Stations.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BLOOD GROUPING TESTS

To the Editor:—I should like some references concerning the technic of doing the blood grouping tests when the M and N factors are concerned. These tests are to be used in conjunction with the ordinary blood grouping tests involving the A and B factors in the exclusion tests of paternity in bastardy proceedings. Are the agglutinating serums for the M and N factors manufactured and put on sale by any of the reliable drug concerns as yet?

BENJAMIN VICTOR DI IORIO, M.D., Utica, N. Y.

ANSWER.—The technic of testing for the factors M and N may be found in the original article by Karl Landsteiner and Philip Levine (*J. Exper. Med.* 47:757 [May] 1928), also, Wiener, A. S.; Zinsler, Rebecca, and Selkove, Joseph: *J. Immunol.* 27:431 [Nov.] 1934, and Wiener, A. S.: *Blood Groups and Blood Transfusion*, Springfield, Ill., C. C. Thomas, 1935, chapter 11. Any one who wishes to make the tests for M and N for applying the results in paternity proceedings must first make a thorough study of the technic in order to familiarize himself with the various pitfalls and sources of error. Even when potent serums are available, incorrect typings result in inexperienced hands. As yet, testing serums for M and N are not available commercially in this country. However, there is no question that any of the workers in the field will be glad to help any investigator who is seriously interested in the subject to get started in any studies he may wish to make.

One of the first requisites is to have available at all times persons of known types M, N and MN, whose blood can be used as controls whenever tests are made. From the reactions given by such controls one can judge the potency and specificity of the serums being used, and if the serums are found to have deteriorated they must be discarded. Moreover, since individual serums vary somewhat in potency and other properties, it is imperative in paternity cases to do the tests with at least two and preferably three reagents of each sort. This is not practicable unless the investigator prepares his own immune serums and testing fluids so that he always has an adequate supply of potent serums on hand. In addition, duplicate blood suspensions should be taken from each person and each tested separately, so as to guard against nonspecific agents, which may alter the properties of the blood suspensions.

EFFECTS OF DUST ON LUNGS

To the Editor:—What is the effect on the bronchi and lungs by concentration of dust to which one may be subject in handling corn, barley, oats and wheat? Would the irritation caused by such dust lower the local resistance of the respiratory epithelium and be a factor in causing pneumonia? Please give references to papers that will give information with regard to the industrial hazard of organic dust which occurs in grain elevators, flour mills and shoe factories. Please omit name.

M.D., Missouri.

ANSWER.—In high concentrations, no dust is entirely harmless to the respiratory tract. Compared with the action of silica, dust from barley, wheat, corn and oats is relatively insignificant. Nevertheless these vegetable dusts long have been associated with abnormal instances of pneumonia, bronchitis and emphysema. A few publications refer to a fibrotic disease attributed to flour of various types. Such a condition, however, is not well authenticated. In an earlier period, milling operations were associated with disease states to a greater extent than at present, owing to the introduction of automatic machinery, dust arresters and generally improved work conditions. In addition to slight mechanical irritation on the respiratory tract, which is reported to predispose to bacterial invasion, it is recognized that fungi mixed with grain materials may lead to fungal infection of the respiratory tissues. The latter is more commonly associated with the handling of grains than with the handling of flour itself. For a long time the term "millers' asthma" has appeared in the literature. The exact nature of this disease is not known, nor is the anemia so prevalent among bakers associated with any particular agency connected with flour or grains. It is now believed that a protein fraction of flour and other grain products may be the direct source of some pulmonary diseases among exposed per-

sons. Lately Prausnitz (Investigations on Respiratory Dust Disease in Operatives in the Cotton Industry, Special Report Series 212, Medical Research Council, London, H. M. Stationery Office, 1936) has traced certain pulmonary diseases among cotton workers to the protein fraction of the cotton.

An analogous situation exists with respect to flour and other vegetable dusts, but precise proof is lacking or incomplete. Kober and Hayhurst (*Industrial Health*, Philadelphia, P. Blakiston's Son & Co., 1924) say: "The inhalation of flour dust, in spite of the smooth and less irritating character of the individual particles comprising it, cannot fail to prove injurious to the respiratory organs. Indeed there is much reason for assuming that the lodgment of flour dust in the minute ramifications of the bronchial tubes and air vesicles, apart from clogging up the air passages and acting as an irritant, may result in collapse of a small area of the lung (atelectasis) or in a dilatation of the vesicles and an abnormal collection of air in the lung tissue, technically called emphysema and popularly known as 'millers' asthma.' Other diseases of the lungs are even more common. According to Hirt, 20.3 per cent of all the diseases affecting millers are pneumonia, 9.3 per cent bronchial catarrh, 10.9 per cent consumption and 1.9 per cent emphysema, a total of 42.4 per cent from diseases of the respiratory passages."

According to the Encyclopedia of Occupation and Health (International Labor Office, Geneva, 1930) "L. Ferrannini studied in 1912 the action of flour inhaled by millers. Although flour is generally considered to be innocuous to the respiratory tract, nevertheless there are writers, especially in past times, who have considered it to be the cause of bronchopulmonary troubles. Thus, for example, Ramazzini speaks of cough, asthma and anemia which he found among millers; Hirt, of respiratory affections; Ascher, of bronchopulmonary lesions; Seiffert, of nasal and pharyngeal lesions; Schuster, of the frequency of pulmonary tuberculosis; Muller, of lesions analogous to those due to pneumoconioses."

The figures quoted are regarded as somewhat old and scarcely applicable at the present time. In addition to the publications mentioned, some material dealing with the situation may be found in "Industrial Dusts," by Drinker and Hatch (New York, McGraw-Hill Book Company).

DIAGNOSIS OF GONORRHEA

To the Editor:—I am writing to inquire whether an absolute diagnosis of gonorrhea can be made with Loeffler's methylene blue stain. I have been told that it can be differentiated only by culture. I have noted on two routine smears taken of patients in the hospital that they showed both intracellular and extracellular diplococci in groups in virgins without symptoms. What other organism may produce an acute urethritis resembling gonorrhea in all its characteristics? I have now a young married couple both of whom show symptoms resembling gonorrhea. Smears show intracellular and extracellular diplococci yet both state that there has been no previous venereal history and both deny clandestine intercourse. They have a child 2 years old. It is my opinion that this is a nonspecific condition perhaps from an endocervicitis following the trauma of delivery. Please omit name and address. M.D., Ohio.

ANSWER.—An absolute diagnosis of gonorrhea cannot be made with Loeffler's methylene blue stain or even with the much more valuable Gram stain. The methylene blue stain reveals only the size and morphology of the intracellular and extracellular cocci. *Neisseria intracellularis* (meningococcus), *Neisseria catarrhalis*, *Neisseria sicca* and *Neisseria flava* may closely resemble one another in smears. They are all gram negative. There are also a number of gram-positive cocci which have a similar appearance but do not concern us here.

For the usual examination of smears for gonococci the Gram stain should be used. In urethral smears gram-negative diplococci, coffee bean shaped, may be considered positive for gonococci whether intracellular or extracellular. In smears from the cervix and the vagina only the typical intracellular organisms are to be considered positive unless confirmed by culture and special tests, since other micrococci are often present.

The tests of greatest value are cultures on appropriate mediums, reactions on carbohydrate mediums, the alkali solubility test and the gonophage test.

In a Gram stain of exudate from acute cases gonococci appear in small clusters in the pus cells, and there is often a clear zone around the cocci. In chronic cases the organisms tend to disappear from the mucous surfaces and to localize in the small mucous glands. They are soluble in alkali and hence tend to disintegrate in alkaline mucus. From a Gram stain one should report the presence or absence of gram-negative intracellular or extracellular diplococci. The presence of gonococci should not be reported unless confirmed by culture and special tests. This is important in medicolegal cases.

The culture mediums often used are ascitic glucose agar, ascitic fluid agar, Gradwohl special ascitic fluid hormone brom-cresol purple agar, and calf brain veal broth agar. Growth is more abundant in an atmosphere containing an increased amount of carbon dioxide (about 10 per cent).

The alkali solubility test is performed as follows: Wash the pure culture with physiologic solution of sodium chloride. In a small test tube place equal parts of suspension and tenth-normal sodium hydroxide solution and shake well. Gonococci dissolve quickly and the fluid becomes clear. Other confusing bacteria do not dissolve. The meningococcus is partly dissolved but leaves a slight opalescence.

Characteristics of *Neisseria*

	Growth on Plain Agar	Growth at 22 C.	Fermentation with Acid Formation			
			Dextrose	Maltose	Levulose	Sucrose
<i>Neisseria gonorrhoeae</i>	—	—	A	—	—	—
<i>Neisseria intracellularis</i> ...	—	—	A	A	—	—
<i>Neisseria catarrhalis</i>	+	+	—	—	—	—
<i>Neisseria sicca</i>	+	+	A	A	A	A
<i>Neisseria flava</i>	—	—	A	A	A	—

Old cultures that have become autolyzed contain a bacteriophage that is specific. This causes lysis of the organism after five hours or more.

From time to time cases of nonspecific purulent urethritis are seen in the male. It is this type which requires a culture diagnosis. The forensic physician must be sure of his ground, as gram-negative diplococci in the male or female are not necessarily gonococci. Some cases of vaginitis in children are due to gram-negative streptococci instead of gonococci. In any doubtful case the patient should be taken to a competent bacteriologist for cultural studies.

The accompanying table presents the important characteristics of the various species of *Neisseria*.

SENSITIVITY TO FEATHERS AND DUST

To the Editor:—I have an asthmatic patient who suffers somewhat the whole year but to a greater degree from September to January. She reacted only to feathers and dust in about 300 tests. She has taken vaccine for feathers and dust for two years. She took a trip to New York weeks ago and felt fine, with no asthma, and the next day after returning home had an attack, which has been almost continuous since. What would you suggest? What kind of heat in the home would be best? The family has low pressure steam. Are the air conditioned attachments for a steam job satisfactory? Is filtered hot air heat better?

JOHN M. PRESSLY, M.D., Belmont, N. C.

ANSWER.—It would seem obvious that dust and feathers exist in New York as well as in North Carolina and that they might be identical in the two places. However, the patient may have in her home some dust peculiar to her environment, as dust from pet animals, ozite floor pads, clothing, foods or automobile equipment. The variety and origin of the allergens is almost limitless. There is a quotation that has been used by many medical commentators to the effect that, if a patient has symptoms in one town and not in another, the basic cause of the trouble lies not in the patient but in the city where the trouble occurred. There is a certain nervous imbalance in every person with allergic reactions. This should always be kept in mind. It may be that in the case cited the nervous imbalance occasioned by the environment is more important in the production of the asthma than is the sensitiveness to feathers and dust. To date there is nothing better in identifying an air-borne allergen than skin sensitization tests. Nevertheless, the results of the reactions must not be accepted as absolute proof with regard to the etiology of the allergic symptoms. Skin sensitization tests leave much to be desired. There is one way to prove clinically which factor is to blame for a systemic allergic reaction. One should start when the patient is symptom free and then bring the patient in contact with one article of food or material at a time. Detailed notes should be kept as to the patient's reactions. Such sleuthing requires infinite patience and time. The patient can do this unaided. Naturally, well humidified heat is the best, and any air conditioning attachment for steam heated buildings is at the present time unsatisfactory. Properly filtered hot air will be the most efficient form of heat, but at the present time, in spite of all advertising to the contrary, air conditioning of buildings is far from perfect, although tremendous advances are rapidly being made by commercial companies.

FORCEPS DELIVERY AND SQUINT

To the Editor:—A baby delivered by a moderately forceful forceps extraction was noted by the parents to have a "mark" at the lateral angle of the eyelid margins, which was assumed to be due to forceps pressure. This small pressure scar was called to the attention of the doctor twice within the year following delivery and was accepted as evidence of forceps pressure with some reservations. The baby developed normally and only an occasional squint was noted until at the age of about 1 year and 9 months the child was taken on a several thousand mile intensive automobile trip of three or four weeks' duration. Distances of 400 to 600 miles a day were driven. The child lost weight and was definitely fatigued by the trip. Immediately after this trip a premonitory convergent squint developed, which soon became a permanent monocular convergent squint involving the eye near the scar described. At operation about a year later there was declared to have been found quite a palsy of the lateral rectus muscle, and the question arose as to whether the squint was paralytic in type and secondary to forceps injury. The child, now 6 years of age, has had to wear fairly strong hyperopic and astigmatic corrective lenses. Of course, as described, this a typical case of concomitant squint; however, could forceps pressure have been a prime factor in the development of this delayed muscular palsy? How frequently is forceps injury assumed to be related to squint? Please omit name.

M.D., Salinas, Calif.

ANSWER.—The history is characteristic of a typical concomitant squint and it is highly improbable that the forceps delivery was related to the condition that developed twenty-one months later. As far as is known, there are no statistics showing any relationship between forceps delivery and the later development of a nonparalytic squint. The presence of the high hyperopia and the excessive fatigue of the automobile trip were probably sufficient to break the fine muscle balance that had held the eyes parallel up to that time, after which the usual course of such a squint was followed.

ARTIFICIAL FEVER TREATMENT OF NEUROSYPHILIS

To the Editor:—I have a patient with neurosyphilis and sent him over to a doctor in Omaha for heat treatment. The treatment is very hard on him and he is skeptical. He insists that I write you to know if this is the best treatment and if not what is. He is taking mapharsen and a bismuth compound at the same time. If you can give me any information on this treatment I would appreciate it. Please omit name.

M.D., Iowa.

ANSWER.—It is difficult to give an intelligent answer to this inquiry because of the meager data given. Neither is the treatment of neurosyphilis as simple as the inquiry would infer. The treatment of neurosyphilis varies greatly with the type of neurosyphilis manifested, the stage of the disease, and the age and the general condition of the patient. Experience has shown that routine treatment will materially help several of the different forms of the disease, while in the other resistant types fever therapy will often be of benefit; a certain few will continue to progress in spite of any therapeutic efforts. Fever treatment by either the electrical fever producing units or by malaria is difficult for the patient to endure, but the results usually warrant the patient's undergoing the ordeal, especially if his infection has shown a tendency to be resistant to routine treatment. From this brief inquiry it would appear advisable to urge the patient to follow out the regimen suggested by the Omaha physician, as it apparently offers the patient the best means of controlling the disease.

POSTERIOR DISLOCATIONS OF HIP

To the Editor:—Will you please send me information with reference to the incidence of posterior dislocations of the hip and the coincidence of posterior dislocation of the hip occurring in more than one patient involved in the same accident. If you have literature available discussing these topics, I would be pleased to have references. Please omit name.

M.D., New Jersey.

ANSWER.—Posterior dislocations of the hips are more frequent than any others in which that joint is involved, occurring about seven times as often as anterior dislocations. However, traumatic dislocations of the hip joint of any type are relatively infrequent. Until the last few years, when highway accidents have become more and more common, the incidence was given at about 2 per cent of all dislocations. While there are no entirely reliable statistics, the incidence of traumatic dislocations of the hip as compared with all dislocations is today nearer 5 per cent. No report has been found in which there was a description of this injury in more than one patient involved in the same accident.

Textbook discussions of traumatic posterior dislocation of the hip may be found in:

Key, J. A., and Conwell, H. E.: *The Management of Fractures, Dislocations and Sprains*, St. Louis, C. V. Mosby Company, 1934.
Speed, Kellogg: *Fractures and Dislocations*, Philadelphia, Lea & Febiger, 1928.

PAROXYSMAL LABYRINTHINE VERTIGO

To the Editor.—A married man, aged 38, has sudden attacks of violent retching, vomiting, nausea and vertigo of such severity that it is necessary for him to be led to a resting place. The attacks last three hours, after which time he recovers completely and is perfectly well until about six weeks later, when the same phenomenon is repeated. Physical examination, the blood Wassermann reaction, urine examination, blood pressure and the blood count are all entirely negative. The history is of no special importance except that there was a football injury to the back of the head twelve years previously. There was no fracture, but a slight concussion. Could you kindly help me in the diagnosis and treatment of this condition. Please omit name.

M.D., Pennsylvania.

ANSWER.—This man has paroxysmal labyrinthine vertigo. He should be examined in detail by a competent neurologist and otologist to determine the presence of organic disease of the brain, especially the auditory nerve, the vestibular nerve and the temporal lobe. One should look for cerebellopontile angle signs and symptoms. If no evidence of a neoplasm is found in these regions the following regimen is suggested: large doses of ammonium chloride, 1 Gm. three or four times daily with diminution of the salt intake. If after a trial of six months with this medication the paroxysms persist, one may consider the possibility of cutting the vestibular nerve intracranially. This nerve is cut on the side of the tinnitus aurium. If a neoplasm is found, neurosurgery is indicated.

TUBERCULOUS EPIDIDYMITIS

To the Editor.—A patient, aged 35, has had the left epididymis removed for tuberculous epididymitis, proved by smear and histologic study. The wound is healed. Repeated examinations of the urinary sediment reveal no pus or tubercle bacilli. The prostate, by rectum, is of normal size, and the expressed secretion contains a large amount of pus. This specimen showed no tubercle bacilli on stained smear. Neither seminal vesical is palpable. The patient is receiving heliotherapy. Should the opposite vas be divided and tied to prevent the epididymis on this side from becoming infected?

M.D., San Diego, Calif.

ANSWER.—As tubercle bacilli have not been demonstrated in expressed smears from prostate and vesicles, there is no evidence to prove that this organism is the cause of the infection at the bladder neck. Some, if not many, of the epididymal infections are hematogenous in origin, and tying off the vas would not necessarily prevent tuberculosis of the remaining epididymis.

DISCOLORATIONS OF SKIN

To the Editor.—Would you kindly tell me the best means of removing discolorations from the skin following injection of superficial varicosities. I have a patient whom I have treated for disfiguring varicosities of the skin. This has been followed by a brown pigment, which fades very slowly. I should like to know whether there is any way of hastening the removal of this discoloration.

J. B. KINNE, M.D., Aberdeen, Wash.

ANSWER.—An exact description of the method and substance employed for thrombosing the varicosities has not been furnished by the correspondent. Since it has been stated that the "brown pigment fades very slowly," it would seem that what were described as discolorations were probably hemorrhagic extravasations into the surrounding tissues and that the discoloration as described was caused by the deposit of blood pigments hemosiderin and hematin.

The normal absorption of the pigment will undoubtedly take its regular course in due time. As in the treatment of hematomas localized to other regions, hot fomentations and other forms of local heat applications may prove of some value in hastening the process.

PERSISTENT CHILLS OR EPILEPSY

To the Editor.—A man, aged 58, has been ailing for the past fifteen years with chills. There is no elevation of temperature accompanying these chills, which last for a period of one hour or more. I have tried various medicaments with little relief. The chills come on at any time of the day without regard to the weather. The patient at the present time is being treated by me for a duodenal ulcer. Is there any connection between these ailments? Please omit name.

M.D., Illinois.

ANSWER.—It is not probable that a patient should have chills over a period of fifteen years without accompanying fever or sweating. If the patient has not been under close or continuous observation, it is sometimes difficult to determine whether the patient has had a rigor or an epileptiform or a hysterical attack. The diagnosis of epilepsy is rendered easy if the patient loses consciousness during the shivering or if he gives a history of similar attacks on previous occasions. Epileptic attacks may be difficult to differentiate from rigors that are hysterical in origin. If the attack should be of the latter variety, the patient's face would be red, not livid and

shrunk, as in the case of a true chill. The temperature would not be elevated, and there should be a history of previous hysterical manifestations.

There do not seem to be any recorded instances of the association of chills with duodenal ulcer.

BLEEDING AFTER COITUS

To the Editor.—A man, aged 40, has been complaining for the past five months of the passage of a considerable amount of blood immediately following intercourse. There is no bloody discharge at any other time and no history of gonorrhea or syphilis. Treatment to date has consisted in massage of the seminal vesicles, instillation of 0.5 per cent silver nitrate into the prostatic urethra and some restriction of the frequency of coitus. None of these measures have benefited the patient any. I should like to have any suggestions you might have to offer as to diagnosis, treatment and prognosis. Please omit name.

M.D., Pennsylvania.

ANSWER.—In all probability this patient suffers from either a chronic prostatitis or a chronic seminal vesiculitis or both. The patient, of course, should be examined with the cystoscope to rule out the possibility of stone, tumor or other lesions in the bladder that might cause bleeding. The prognosis is favorable. With regard to treatment, massage of the prostate and seminal vesicles at weekly intervals is indicated. Instillations of silver nitrate had best be omitted. The restriction of the frequency of coitus is a correct procedure. Internally it might be well to give the patient 0.65 Gm. of potassium iodide three times a day with a glass of water, after meals.

PANCREATIC CALCULI

To the Editor.—A man, aged 56, an automobile mechanic, had severe cramplike pains over the epigastrium for three weeks, sharpest three hours after meals, and over the left costal margin. He then passed a cupful of calculi and the pain ceased. The stones were of calcium, phosphate and carbonate. No bile coloring matter was found. They were up to half an inch in diameter. Can these stones be pancreatic in origin? The treatment seems to be surgical or dietetic. The dietetic treatment seems to aim to reduce pancreatic secretion. As the cause of these stones is given as obstruction or decreased secretion, should not this diet be such as to increase pancreatic secretion? Please omit name.

M.D., California.

ANSWER.—The stones as described correspond in composition to pancreatic calculi. To prevent their formation, increasing the flow of pancreatic juice is indicated. This may best be accomplished by frequent feedings (six meal plan) and the drinking of an abundance of water. If there is hypochlorhydria, the administration with meals of diluted hydrochloric acid may be indicated. Pilocarpine nitrate has also been given with the intention of increasing the flow of pancreatic juice. The dosage (0.005 Gm. more or less) would, of course, have to be kept below the point of making the patient uncomfortable by salivation, diaphoresis or nausea.

SIGNS OF PULMONARY EMBOLISM SEEN IN AUTOPSY

To the Editor.—How often after death from pulmonary embolus will evidence of the embolus and its resultant effects be found in the lung at autopsy done within twenty-four hours of the time of death? Is it possible to have sudden death from pulmonary embolus and not find at autopsy within twenty-four hours any evidence in the lung?

WILLIAM B. SMITH, M.D., Wethersfield, Conn.

ANSWER.—It is not conceivable that sudden death from pulmonary embolism can take place without detectable evidence of its occurrence at necropsy within twenty-four hours of death. In cases of massive embolism of the pulmonary artery and its large branches, the changes in the lung tissue itself may not be marked, but there would be present in the arteries the embolus itself.

SENILE CATARACT

To the Editor.—Please advise me whether there is a calcium deposit in cataracts and if a milk or cheese diet is detrimental.

CARLETON DEEDERER, M.D., Miami, Fla.

ANSWER.—Calcium is one of the constituents of the ash of the normal lens. Its amount is exceedingly small but is considerably increased in senile cataract (Collins and Mayou: Pathology of the Eye, p. 624). If simple senile cataract is the type in question, it may be stated that there are no free calcium deposits in the lens but that the calcium is in solution in the tissues. Deposits of calcium in the form of plaques occur only in later degenerative forms. There is no reason to believe that a milk or cheese diet would be detrimental in the case of senile cataract.

LEAD POISONING IN CHILDREN

To the Editor:—I have a patient, a baby girl, who shows signs of lead poisoning. I have examined everything thoroughly that has been used in the preparation of her food and in the course of the investigation the rubber nipples were examined. I took roentgenograms of these nipples together with samples of several different kinds from the drug store and found that three or four cast heavy shadows but that the particular one used for this child cast the heaviest shadow. I am wondering whether you could give me any information regarding the use of lead in the making of nipples and also whether or not this could be considered as the cause of lead poisoning.

A. L. ARNOLD JR., M.D., Owosso, Mich.

ANSWER.—Lead poisoning in children may be caused by ingestion of lead from various sources. Among the more common sources of lead poisoning are the enamel from cribs, painted furniture and toys with which the infant comes in contact. Licking painted walls is another source of lead poisoning.

While sulfur and other chemical elements are employed in the processing of rubber, lead is usually employed only in the rubber gloves and aprons that are used as protection in x-ray work. The rubber nipples mentioned in the query might be sent to a chemist and tested for lead, or the manufacturers might be interrogated as to the use of lead molds or any lead employed in the processing of the nipples.

Perhaps another careful history would reveal a source other than the rubber nipples from which the baby might have contracted the lead poisoning.

PSYCHOSIS IN IDENTICAL TWINS

To the Editor:—In a hospital at the present time are identical twin sisters, aged 27, one single and one married, showing a general manic type of psychosis, with schizophrenic coloring in the single sister. I am interested in knowing the incidence of psychosis in identical twins. I would appreciate it very much if you could give me the statistics on this or tell me where I might be able to find them. The married sister had the first attack a year ago. The married sister entered the hospital two months following the entry of the single sister and with a complication of bronchopneumonia.

J. W. DOUGHTY, M.D., Sedro-Woolley, Wash.

ANSWER.—There is some evidence that, on the whole, mental disorders are somewhat more common among twins, especially monozygotic, than among singly born persons; but it is not likely that manic-depressive psychoses, in particular, are more common among them. Not many studies of mental disorders in twins have been made, although it was pointed out in the seventies of the last century, by Francis Galton, that researchers on twins should shed much light on the hereditary factors in human temperament and in the etiology of constitutional mental disorders. A discussion of this matter, together with a selected list of references, is given by Rosanoff, A. J.; Handy, L. M., and Plesset, I. R.: *The Etiology of Manic-Depressive Syndromes with Special Reference to Their Occurrence in Twins*, *Am. J. Psychiat.* 91:725 [Jan.] 1935.

LEAD TREATMENT IN CANCER

To the Editor:—I was told a few days ago that in cases of inoperable malignant growths, especially the sarcomas, there is a method of treatment by means of lead poisoning. The physician who was telling me this was not certain of the details but said he had read an article recently. As I have a patient with inoperable fibrosarcoma, who is suffering a fair amount of pain, and as I do not remember reading anywhere of any such treatment as giving lead by injection beyond the point of tolerance and then treating for the ensuing plumbism, all this with the view of ameliorating and causing regression of the malignant growth, would you please enlighten my ignorance. Please omit name. M.D., New York.

ANSWER.—The use of lead preparations in the treatment of cancer has been generally abandoned. The administration of lead selenide was advocated some years ago as a less toxic product. These agents have not proved their value in the treatment of cancer and should not be generally employed. In view of their toxicity, their use is justified only on an experimental basis in the large clinics where the investigation can be carefully controlled. Even under these conditions their use is questionable.

CHRONIC PROSTATITIS

To the Editor:—I have a case of nonvenereal chronic prostatitis showing little or no hypertrophy at present, clinically free from symptoms except for pus cells in the secretion following massage. What should I advise the patient as to moderate sexual intercourse? What danger of infection is there to the woman? Please omit name. M.D., Massachusetts.

ANSWER.—If it has been proved that the gonococcus is not present in the pus obtained from the prostate, there is no danger of infection to the woman.

Sexual intercourse sometimes has a tendency to stir up these cases.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, June 12, page 2066.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*, June 21-23 and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held in different centers of the United States and Canada in October. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OPHTHALMOLOGY: *Chicago*, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF SURGERY: *Part I (written)*, Sept. 20. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral examination*. Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

New York Endorsement Report

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports 122 physicians licensed by endorsement from Jan. 1 through March 9, 1937. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad. of
University of Arkansas School of Medicine.....	(1935) N. B. M. Ex.	
University of Colorado School of Medicine.....	(1931) Colorado	
Georgetown University School of Medicine.....	(1934) Maryland,	
(1935, 2) N. B. M. Ex., (1935) New Jersey		
Howard University College of		Colum.
Northwestern University Medical		Dakota
Rush Medical College.....	(1934) N. B. M. Ex.	
University of Illinois College of Medicine.....	(1931) Illinois	
Indiana University School of Medicine.....	(1932), (1936) Indiana	
State University of Iowa College of Medicine.....	(1933),	
(1934), (1935) Iowa		
University of Louisville Medical	(1934) Penna.	
Johns Hopkins University School of		
(1933) Maryland, (1930) N. I.		
North Carolina		
University of Maryland School of Medicine and Col-		
lege of Physicians and Surgeons.....	(1930), (1931), (1934) Maryland	
Harvard University Medical School.....	(1926) Ohio,	
(1930), (1933), (1934) N. B. M. Ex.		
Tufts College Medical School.....	(1932) N. B. M. Ex.	
University of Minnesota Medical School.....	(1928) N. J., (1936) N. B. M. Ex.	
Albany Medical College.....	(1933), (1935, 2) N. B. M. Ex.	
Columbia Univ. Col. of Physicians and Surgeons.....	(1932, 2),	
(1933), (1934) N. B. M. Ex.		
Cornell University Medical College.....	(1933), (1934), (1935) N. B. M. Ex.	
New York University, University and Bellevue Hos-		
pital Medical College.....	(1933) New Jersey, (1934) N. B. M. Ex.	
University of Rochester School of	(1935) New Jersey	
Eclectic Medical College,	3) Ohio	
Ohio State University College of	21) Ohio	
University of Cincinnati College of Medicine.....	(1930), (1931) Ohio	
Hahnemann Medical Col. and Hosp. of Philadelphia.....	(1936) Maryland	
Temple University School of Medicine.....	(1933) New Jersey	
University of Pennsylvania School of Medicine.....	(1924) Penna.,	
(1933) N. B. M. Ex.		
Woman's Medical College of Pennsylvania.....	(1935) N. B. M. Ex.	
Meharry Medical College.....	(1933), (1934) Tennessee	
Vanderbilt University	(1935) Tennessee	
Baylor University	(1936, 2) Texas	
University of Vermont College of Medicine.....	(1935) N. B. M. Ex.	
Medical College of Virginia.....	(1933) N. Carolina,	
(1924), (1935) Virginia		
Medizinische Fakultät der Universität Wien.....	(1926),*	
(1930)* Austria		
Albert-Ludwigs-Universität Medizinische Fakultät,		
Freiburg	(1926)* Germany	
Albertus-Universität Medizinische Fakultät, Königsberg.....	(1920)*	
New Jersey, (1920)* Germany		
Friedrich-Alexanders-Universität Medizinische Fakul-		
tät, Erlangen.....	(1916),* (1925)* Germany	
Friedrich-Wilhelms-Universität Medizinische Fakultät,		
Berlin	(1914),*	
(1919),* (1922, 2),* (1923, 2),* (1924),* (1926, 2)*		
Germany		
Georg-August-Universität Medizinische Fakultät,		
Göttingen	(1921)* Germany	
Hamburgische Universität Medizinische Fakultät.....	(1922)*	
Hessische Ludwigs-Universität Medizinische Fakultät,		
Giessen	(1922)* Germany	
Johann Wolfgang Goethe-Universität Medizinische		
Fakultät, Frankfurt-am-Main	(1924)* Germany	
Julius-Maximilians-Universität Medizinische Fakultät,		
Würzburg	(1921),* (1935)* Germany	
Kaiser-Wilhelms-Universität Medizinische Fakultät,		
Strassburg	(1907)* Germany	
Ludwig-Maximilians-Universität Medizinische Fakul-		
tät, München	(1913),* (1922, 2),* (1923)* Germany	
Rheinische Friedrich-Wilhelms-Universität Medizin-		
ische Fakultät, Bonn	(1918)* Germany	
Schlesische-Friedrich-Wilhelms-Universität Medizinische		
Fakultät, Breslau	(1911),* (1912),* (1922)* Germany	

- Universität Heidelberg Medizinische Fakultät,.....(1923),*
(1931)* Germany
Universität Leipzig Medizinische Fakultät... (1910),* (1919)* Germany
National University of Athens School of Medicine.....(1922) Michigan
Magyar Királyi Erzsébet Tudományegyetem Or-
vostudományi, Pecs(1926)* Hungary
Magyar Királyi Pázmány Petrus Tudományegyetem
Orvosi Fakultása, Budapest.....(1915),* (1924)* Hungary
Regia Università degli Studi di Bologna. Facoltà di
Medicina e Chirurgia(1935)* Maryland
Regia Università degli Studi di Padova. Facoltà di
Medicina e Chirurgia(1927) Italy
Regia Università degli Studi di Roma. Facoltà di
Medicina e Chirurgia(1934) Maryland
Regia Università degli Studi di Bologna. Facoltà di
Medicina e Chirurgia(1933), (1934),* (1935, 5)* Maryland
eif der Geneeskunde.(1928) Ohio
University of St. Andrews Conjoint Medical School,
Scotland(1935)* New Jersey
Universität Bern Medizinische Fakultät.....(1919) Switzerland
(1934) Maryland, (1935) New Jersey
Odessa Medical Institute.....(1921)* New Jersey
* Verification of graduation in process.

Book Notices

Safe Childbirth: The Three Essentials. 1. Round Brim. 2. Flexible Joints. 3. Natural Posture. By Kathleen Olga Vaughan, M.B. With foreword by Howard A. Kelly, M.D., LL.D. Cloth. Price, \$3. Pp. 154, with 49 illustrations. Baltimore: William Wood & Company, 1937.

The author's object in writing this book was to simplify the attendance on childbirth while making it a safer and easier process for both mother and child. She made a thorough study of the processes of labor among civilized, semicivilized and uncivilized people in many parts of the world. This investigation led her "to the conclusion that the essential factors which make for the safety of mother and child in every birth are the round pelvis, mobile pelvic joints, and the use of the natural posture for delivery. . . . These are all characteristic of the healthy woman to whatever race she belongs. . . . Difficult childbirth is not a matter of chance nor is it dependent on the will of Heaven, but it follows the violation of the fundamental laws of health." The author shows that the evils associated with childbirth which exist in civilized countries are due to improper training of girls in childhood, to the lack of sufficient sunshine, fresh air and proper exercise, to improper food and clothing, to bad habits during pregnancy and postural errors which prevent the necessary expansion of the birth canal during labor. The author maintains that a vegetarian diet is the natural one for pregnant women. She describes and illustrates exercises for pregnant women and the correct posture which should be assumed by women in the different stages of labor. She emphasizes that parturition and defecation are similar processes. The same muscles are used in the two, but in one the *vis a tergo* is the uterine muscle, in the other the intrinsic muscles of the intestine. In both cases they are aided by the abdominal muscles and by posture. The author feels confident that, if we would only adopt the natural posture during the birth of children, most of our troubles would disappear. Puerperal sepsis would soon be a thing of the past. Adopting the natural position during labor is, however, no cure for the oval pelvis and for stiff joints. The blame for these lies on the shoulders of those who brought the patient up, her mother above all, then her school. The two habits of civilization which destroy the natural shape of the pelvis are neglect of the squatting position for defecation and the wearing of high heels. For those interested in improving obstetrics this book will prove fascinating. It is well written and has many interesting illustrations.

Die Diät- und Insulinbehandlung der Zuckerkrankheit für Studierende und Ärzte. Von Dr. Franz Depisch. Mit einem Vorwort von Prof. Dr. N. v. Jagl. Paper. Price, 4.80 marks. Pp. 136, with 8 illustrations. Vienna: Julius Springer, 1937.

For the reader of German who wishes a brief yet thoroughly satisfactory treatise on diabetic therapy, this little book will afford great satisfaction. It is practical and based on the following consideration of underlying theory:

Diabetes is considered to be a condition in which the normal balance between the excretion of sugar by the liver and its utilization in the periphery is disturbed so that the former process predominates, sugar thereby rising in the blood and

overflowing into the urine. The maladjustment between supply and utilization of blood sugar depends on disequilibrium between the activity of the insular mechanism and that of the regulators of blood sugar opposed to the insular mechanism. Such counterregulation is effected by the secretions of the adrenal and other glands as well as by the sympathetic nervous system. Certainly in the large majority of cases of diabetes and possibly in all cases the disturbance is primarily one of functional insufficiency of the islands; nevertheless the possibility exists of diabetes attributable exclusively to hyperactivity of the counterregulatory mechanism. Pure insulin insufficiency and pure hyperactivity of counterregulation represent extremes between which may be found all degrees of combination of the two. Insufficiency of insulin is not alone responsible in the average case of diabetes; the condition is influenced invariably by the state of the counterregulatory mechanism.

Treatment is adjusted accordingly. For cases in which insulin insufficiency predominates, preservative therapy is instituted. This is accomplished either by administering insulin or by limiting the intake of sugar formers (carbohydrate, protein), with dependence on fat to supply calories. Such a regimen has the disadvantage of being stimulating to the counterregulatory mechanism, but usually this is outweighed by the resulting increased efficiency of the insular mechanism; the disadvantage furthermore is overcome by gradual additions of carbohydrate to the diet after the urine has become sugar free. For cases in which hyperactivity of the counterregulatory mechanism predominates, more carbohydrate is given and the fat of the diet is simultaneously restricted. Illustrative cases are cited and dietary details are provided.

It commonly has been supposed that complete failure of the island mechanism is responsible for diabetic coma, but against such a view is the fact that the pancreas obtained from a patient dying in coma is found to contain appreciable amounts of insulin. It also is frequently observed that the doses of insulin necessary to overcome coma are many times those required for the control of the severest cases of diabetes not complicated by coma. The author is therefore led to the conclusion that intense overactivity of insulin antagonists must be largely responsible for the development of coma. This explanation not only accords with the facts opposed to the older supposition but harmonizes with the beneficial therapeutic effect in coma of fructose and dextrose, which exert a dampening effect on the activity of the counterregulators. The author suggests that benefit might be effected by paralyzing the innervation of the liver by means of paravertebral anesthesia. These theoretical considerations receive more complete discussion elsewhere (Depisch, Franz: Ueber die Theorie und Praxis der Behandlung des Diabetes, *Ergebn. d. inn. Med. u. Kinderh.* 48:1, 1935).

Maternity and Post-Operative Exercises in Diagrams and Words. By Margaret Morris, C.S.M.M.G. In collaboration with M. Randell, S.R.N., S.C.M., T.M.M.G. (Twenty-One Exercises). Introduction to Maternity Exercises by Professor R. W. Johnstone, C.B.E., M.D., F.R.C.S.E. Introduction to Post-Operative Exercises by Professor John Fraser, M.C., M.D., F.R.C.S.E. Cloth. Price, \$2. Pp. 152, with illustrations. New York: Oxford University Press, 1936.

In this book Margaret Morris illustrates and describes a series of twenty-one exercises for pregnant and puerperal women and women who have been operated on. Special attention is given to training in deep breathing and relaxation to establishing good posture. Prof. R. W. Johnstone observed the teaching of these exercises for a year at the Edinburgh Royal Maternity Hospital and he is of the opinion that the results are distinctly encouraging. Prof. John Fraser, who wrote the introduction to the section on postoperative exercises, is satisfied with the soundness of Miss Morris's scheme and believes that their application will yield most beneficial results. The author emphasizes that the book is intended primarily for masseuses, midwives and nurses who have taken the "maternity and post-operative exercise diploma" of the International Institute of Margaret Morris Movement and for students doing the two or three years' "teaching" or "remedial" training. The Margaret Morris movement is a method of physical and mental training that has evolved over a period of twenty-six years. There are now four main divisions of it, normal, medical, athletic and esthetic, but all are interrelated. The author also points out that it is not advisable to try to learn the exercises

which she illustrates and describes solely from the book. She cautions that the exercises should be carried out under medical supervision. The author is to be commended for the excellence of her drawings and the clarity of her descriptions. Nevertheless, as she herself says, one must take a prolonged course under her or one of her disciples in order to obtain the full benefits of the exercises described in the book.

Études neurologiques. Les myoclonies vélo-pharyngo-laryngo-oculo-diaphragmatiques—La maladie de Friedreich—Pathologie du névraxe. Par Georges Guillaumin, professeur de clinique des maladies du système nerveux à la Faculté de médecine de Paris, et Pierre Mollaret, médecin des hôpitaux de Paris. Seventh series. Paper. Price, 60 francs. Pp. 302, with 78 illustrations. Paris: Masson & Cie, 1936.

This book is the seventh of a series written by Georges Guillaumin on neurologic studies. In this edition Pierre Mollaret is co-author. All the material publication was studied and analyzed in the clinic at the Salpêtrière. It is divided into three parts: myoclonus of the palate, pharynx, larynx, eyeballs and diaphragm; Friedreich's ataxia; pathology of the cerebrospinal axis. Myoclonus of the palate and pharynx is discussed in detail with all the available literature to date. Not only are the clinical aspects given but the pathologic appearances are dealt with at considerable length. The authors feel the essential lesion to be briefly that concerning the dentate nucleus, the bulbar olive, posterior longitudinal bundle, superior cerebellar peduncle and the red nucleus. They have attempted rather successfully to place this syndrome in an orderly nosology, semeiology, pathology and physiology. The second part, dealing with Friedreich's ataxia, draws attention to a cardiac bulbar syndrome with alterations in the electrocardiogram as well as labyrinthine difficulties. All subgroups of the cerebellar degenerative syndromes are adequately discussed. The third part includes original studies on Pick's disease, pinealomas, infectious diseases of the central nervous system, torsion spasms and indications for cisternal and lumbar punctures. There is an excellent bibliography after each chapter. This book, like all the previous series, is highly recommended to all neurologists.

Childless: A Study of Sterility, Its Causes and Treatment. By Sam Gordon Berkov, M.D. Cloth. Price, \$3. Pp. 307, with 9 illustrations. New York: Lee Furman, Inc., 1937.

This book will prove fascinating to the public for whom it was written, because it is easy to read and it contains a great deal of interesting information. However, little space is devoted to the actual causes and treatment of sterility, for the book is really a historical and philosophic treatise on the subject of sterility. It is divided into three parts, the first of which contains a discussion of our sterile civilization, social aspects, the second how we reproduce ourselves, biologic aspects, and the third the conquest of sterility. The last part occupies only thirty-one pages. Even in these only a small proportion is taken up with the actual discussion of the treatment of infertility. The author does not think much of artificial insemination and he particularly discourages the use of donor's semen for this purpose. He likewise and properly lacks enthusiasm for plastic operations on the tubes to overcome sterility. At the end of the book is an extensive list of references which even physicians will find useful.

Die Fermente und ihre Wirkungen. Von Prof. Carl Oppenheimer, Dr. phil. et med. Supplement. Lieferung 3 (Bd. I: Spezieller Teil: Hauptteil 8, 9). Paper. Price, \$6.80. Pp. 321-480. The Hague: W. Junk, 1936.

Die Fermente und ihre Wirkungen. Von Prof. Carl Oppenheimer, Dr. phil. et med. Supplement. Lieferung 4 (Bd. I: Spezieller Teil: Hauptteil 9-12). Paper. Price, \$6.80. Pp. 481-640, with illustrations. The Hague: W. Junk, 1936.

The continued compilation and abstracting of the rapidly accumulating literature on enzymes and their actions as presented by Oppenheimer in these supplements to volumes 1 and 2 of his monumental work *Die Fermente*, edition 5 (1935), should be welcomed by all workers in the field of enzymes. The last two supplements under consideration here cover heteroxidases in general and more specifically those acting on cardiac, uronic acid, and mustard oil glucosides. Polyase action is discussed in detail in conjunction with the modern conception of the structure of the polysaccharides. The preparation, characteristics and differential actions of the different types of amylases

are presented fully, with briefer treatment on fructase, inulase, cytases, pectinases and cellulases. Under nucleases the controversial situation on the types of phosphatases necessary for the liberation of phosphoric acid from the plant and animal nucleic acids is presented. The more modern views on the mechanism of deamination of amino acids and free and combined purines are properly emphasized. The complex problem of arginase activation is covered thoroughly. In connection with muscle chemistry, the new views on the possible action of a phosphaminase on creatine phosphate are timely. Urease is reviewed thoroughly. The proteases are treated only in part in supplement 4, being limited to the general discussion of the theoretical aspects of the possibility of specific unions other than peptide linkings between units in the protein molecules. The detailed discussions on pepsin, trypsin and erepsin will no doubt appear in later supplements. The terminology adopted by Oppenheimer appears rather unfortunate in part. This holds in particular for the old terms pepsin, trypsin and erepsin, which he refers to as pepsinase, tryptase and ereptase. The work is not only an excellent review on the enzymes proper but equally valuable on the structures of the polysaccharides and proteins and the products obtained from them at various stages of hydrolysis.

Nouveau traité de psychologie. Par Georges Dumas [editor], professeur à la Sorbonne. Tome V, Fascicule 1: *La perception.* Par B. Bourdon, professeur honoraire à l'Université de Rennes. Paper. Price, 15 francs. Pp. 84, with 37 illustrations. Fascicule 2: *Les opérations intellectuelles.* Par H. Delacroix, doyen de la Faculté des lettres de l'Université de Paris. Paper. Price, 20 francs. Pp. 85-184. Fascicule 3: *La croyance. La psychologie de la raison: Nature et fonction de l'intelligence.* Par H. Delacroix, doyen de la Faculté des lettres de l'Université de Paris. Paper. Price, 20 francs. Pp. 185-304. Fascicule 4: *Le temps et les souvenirs. Le rêve et la rêverie.* Par H. Delacroix, doyen de la Faculté des lettres de l'Université de Paris. Paper. Price, 20 francs. Pp. 305-404. Paris: Librairie Félix Alcan, 1936.

These four pamphlets form the fifth volume of the rather massive treatise on psychology edited by George Dumas, who is one of the leading psychologists of France. The various authors also are authorities in their particular field, and the whole atmosphere of Dumas' complete study is one of scholarliness and careful summarization of known theoretical material. The first part of the volume deals with perception, and in general one can say that the point of view is quite modern but not, of course, clinical. Much more space is devoted here to the gestalt interpretation of perceptual ability than in any previous work of a similar nature. Perception is summarized from the standpoint of ability to assimilate various sensations and bring them together in a relationship. Much of the older material on the subject is retained, although a good deal of earlier experimental work and perception, which has been quoted extensively in American works, has been neglected. Much space has been devoted to illusions, as has been the custom, and this might well be justified, for in the study of illusions one does gain much understanding of the way in which sensory impulses are fused and integrated.

The part of this volume devoted to intellectual operations is again quite theoretical. It deals largely with such concepts as those of number and of language, the various laws of language, how expressions are phrased, and how intercommunication between individuals in the formation of various concepts are brought about. This section is probably more rational and philosophic than any other part of the volume.

In the third section, devoted to belief and the psychology of reason, one finds a good summary of our modern understanding of intelligence. There is a historical introduction and various points of view are taken up. Such factors as intelligence as a special trait and as a general factor running through the whole mind are carefully discussed. In addition, suggestibility, belief and knowledge, organization and structure of thought, and similar mental traits and capacities are discussed from the standpoint of the teaching psychologist. There is also included some explanation of intelligence as manifested by animals, but it is far inferior to the animal psychology that is now so much stressed in the United States.

The last part of the volume, devoted to time, memory and dreaming, again is a conglomeration of theory with a little practice. Much stress is laid on the interpretation of an individual's understanding of time and the theoretical concep-

of memory. The memory concept as discussed here is somewhat of an improvement on that of the early experimental psychologists, but it does not integrate modern American psychologic studies of mnemonics with the gestalt theory and animal experimentation, which offers some good explanations of memory and allied phenomena. In this part, however, are the two sections of most interest to the psychiatrist and practicing physician, a few pages devoted to amnesia and paramnesia, and there is also a section devoted to the interpretation of dreams. Both of these are much shorter than those currently found in psychoanalytic and psychiatric works, and the volume, while excellent for the teacher of theoretical psychology in the university, cannot be recommended for use by the medical profession except as background material.

The Baby and Growing Child: Feeding and Health Care for Physicians, Mothers, and Nurses. By Louis Fischer, M.D., Consulting Physician to the Willard Parker Hospital, New York City. Cloth. Price, \$1.50. Pp. 260, with 30 illustrations. New York & London: Funk & Wagnalls Company, 1936.

Numerous simply written books and pamphlets are available for the guidance of mothers in the care of small children. This book is an average example of works of that kind. Most of the statements are correct and are calculated to instruct the mother, at the same time that an effort is made to prevent her from making diagnoses herself. A few of the statements are open to question, as, for example, "Shock, fright and sudden excitement during pregnancy may cause psychic disturbances in the newly born." On the whole, however, no harm could result from reading this book, and in many respects it is so simply written that any mother who can read at all could not fail to understand the purport of the material.

Lehrbuch der Krankenernährung. Herausgegeben von Prof. Dr. C. R. Schlayer und Dr. J. Prüfer, Augusta-Hospital, Berlin. Teil 1: Allgemeine und spezielle Diätetik. Bearbeitet von Chefarzt Dr. H. Delcher et al. Second edition. Cloth. Price, 8.50 marks. Pp. 283, with 3 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1937.

The second edition of this eminently practical book on dietetics followed the first so promptly that few considerable changes could be made; the chapter on reducing and fattening diets has been assigned to Grafe, well known for his researches on metabolic disorders. A new, interesting chapter on the hygiene of foodstuffs and kitchen utensils, prevention of food poisoning and related subjects has been contributed by Ziegelmayer. As dietetics is usually treated in medical schools in a stepmotherly manner, the handy booklet should be of interest not only to dietitians but to medical practitioners as well.

Medical Morals and Manners. By Hubert Ashley Royster, M.D. Cloth. Price, \$2.50. Pp. 333. Chapel Hill, N. C.: University of North Carolina Press, 1937.

This contains some of the addresses and newspaper and magazine articles which the author, an eminent surgeon, has presented during forty years to various audiences. Many of them deal with matters affecting the mutual relations of the medical profession and the public. The subjects vary widely and include the dignity of medicine, muscle, the philosophy of surgery and a few biographic sketches. There is a good deal of charm in many of the essays, although, because of the varied audiences and varied times at which they were written, any cohesiveness is notably lacking. Absence of technical language makes for easy lay reading. The book may be recommended for those who like the philosophic approach to medicine and who have the time to spend in this manner.

Dietetics for the Clinician. By Milton Arlenden Bridges, B.S., M.D., F.A.C.P., Director of Medicine, Detention, Rikers Island and West Side Hospitals, New York. Third edition. Cloth. Price, \$10. Pp. 1,051. Philadelphia: Lea & Febiger, 1937.

The first edition was reviewed in *THE JOURNAL* in 1933. The appearance of the third edition in 1937 amply attests its popularity. The material is well organized and simply written. Revision is adequate. The most striking features of the book are its practicability and the ease with which material can be located through the table of contents or the index. The collaboration of various specialists adds greatly to its value. It should be on the shelves of all those who need to prescribe diets for various diseases.

Facts and Frauds in Woman's Hygiene: A Medical Guide Against Misleading Claims and Dangerous Products. By Rachel Lynn Palmer and Sarah K. Greenberg, M.D. Cloth. Price, \$2. Pp. 311. New York: Vanguard Press, 1936.

The popularity of "100,000,000 Guinea Pigs," which exposed the sales methods and inordinate profits of widely advertised brands, has led to much imitation. The same methods are used here with regard to preparations designed entirely for women. Many of the well known nostrums, some of which have been exposed in the columns of *THE JOURNAL*, are again discussed in a popular vein. The facts on the whole are accurate, but the organization is poor. There could be some advantageous shifting of chapters and some improvement in the style. This book may serve to interest many women in obtaining more reliable information on their "personal hygiene" than that supplied through street car advertisements.

Report of the Medical Research Council for the Year 1935-1936. Paper. Price, 3s. Pp. 172. London: His Majesty's Stationery Office, 1937.

This report is largely a catalogue of the activities of the Medical Research Council for the fiscal year 1935-1936. The activities listed are both numerous and of impressive quality. It is, in fact, difficult to single out from this report any specific research activities of more immediate or ultimate significance than the others. The investigations of influenza at the National Institute for Medical Research concerning the transmission of the influenza virus to ferrets and man already have received wide attention. Considerable activity along nutritional lines is summarized in the report. The detailed results of many of the activities listed have been published, and others are appearing in the current literature at frequent intervals. The report deserves, and should receive, the careful attention of all those who exert any influence on the course of research in this country. Sections of the report are referred to also in the London letter that appeared in *THE JOURNAL* April 24.

The Comparative Feeding Values for Poultry of Barley, Oats, Wheat, Rye and Corn: A Review and Analysis of Published Data. Prepared for the Associate Committee on Grain Research of the National Research Council and the Dominion Department of Agriculture. By Earle W. Crampton, Associate Professor of Animal Nutrition, Macdonald College (McGill University), Quebec. Dominion of Canada, National Research Council, Report No. 29. Paper. Price, 25 cents. Pp. 50. Ottawa: J. O. Patenaude, I. S. O., 1936.

Professor Crampton reports data on the relative values of various grains for feeding chickens. The chief differences in nutritional value are due to the quality of the protein. Also the mineral and vitamin portions of the different grains are important. With proper supplements in the form of protein, salts and vitamins, the different cereal grains studied were about equal in feeding value for poultry. The author concludes that a mixture of two or more of the cereal grains is to be recommended over the use of any one grain alone.

Why We Do It: An Elementary Discussion of Human Conduct and Related Physiology. By Edward C. Mason, M.D., Ph.D., F.A.C.P., Professor of Physiology, University of Oklahoma School of Medicine, Oklahoma City. Cloth. Price, \$1.50. Pp. 177, with 4 illustrations. St. Louis: C. V. Mosby Company, 1937.

This little book, written by a physiologist, is presented with the hope that it will help nontechnically trained persons to orient themselves to some extent in the field of practical psychiatry. It is intended to clarify, for the ordinary person, the principal motivations of his behavior. The author believes that man's behavior is affected almost entirely by three factors: the ego, sex and the herd. Unfortunately, even these objectives do not appear to be constantly in his mind. The result is a discussion often lacking in essential simplicity yet failing to reflect advanced thought in the field. More satisfactory books for laymen interested in this field are available.

Glycerine: Its Role in Medicine. By Milton A. Lesser, B.Sc., and John R. Murphy, M.D. Reprinted from the American Professional Pharmacist, June, July, August, 1936. Paper. Pp. 16. New York, [n. d.]

This pamphlet reviews the wide use of glycerin throughout the years during which it has been employed, either in pharmaceutical practice or as a therapeutic preparation. Glycerin is one of the really essential vehicles for many pharmaceutical preparations. For a booklet of this kind it is conservatively written, but here and there are some errors in description.

There are statements made concerning the medicinal use of glycerin that would be more critical if they were based on comparison with other forms of treatment. For instance, in the treatment of varicose veins glycerin has not received general acceptance. Discounting these details, however, the book may serve as a reference guide for compounding or manufacturing pharmacists. For prescribing physicians it may be of some value for casual reading.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Burn Following Fracture and Therapeutic Application of Heat.—The defendant, a physician, was called to treat a fracture of the arm of the plaintiff's 7 year old son. After he reduced the fracture and set the bone the patient's arm became swollen, and two days after the accident he was taken to the defendant's office. There the defendant placed a cloth over the injured arm and directed a nurse to apply a "heat lamp" for fifteen minutes. At the end of that time the defendant examined the arm and directed that the treatment be continued for fifteen minutes more. When the cloth was removed at the expiration of that period, the patient's arm or hand was found to be badly blistered. The defendant, the plaintiff claimed, rubbed his hand over the affected area and the skin came off, leaving the raw flesh exposed. Ten days later, the patient developed scarlet fever. Another physician treated the patient for that disease, but the defendant continued to treat the arm by means of "heat or diathermy treatments." The patient recovered, except for a permanent scar on the hand. His father sued the physician who had treated the fracture, the defendant in this case. The trial court directed a verdict in favor of the defendant, and the plaintiff appealed to the Supreme Court of Michigan.

The plaintiff contended that the defendant was negligent in that he applied heat for too long a period, despite the remonstrances of the parents and the entreaties of the patient to stop because it was burning him. Evidence was offered to show that after a severe fracture there is an inadequate blood supply to the injured part and that "a hyperemial lamp" is commonly used to supply the deficiency. The defendant testified that thirty minutes was the regular and proper time for the application of heat and that he had applied it for as long as forty-five minutes; but the record does not show the distance from the arm at which the lamp was placed in this case or the usual or proper distance. The record is obscure as to the type of heat therapy used, the terms "heat lamp," "heat or diathermy," and a lamp that gives "only an even heat" and does not give off "penetrating rays" being used indifferently to describe the device used. The defendant testified that a blister had formed when the application of heat was discontinued, but that it would have appeared in any event as a result of the fracture and the subsequent swelling, even if less heat had been applied. To the plaintiff's charge that the defendant rubbed his hand over the blistered area taking off the skin and leaving raw flesh exposed, the defendant replied that he had put his hands over the blister to determine the amount of the underlying swelling.

The plaintiff contended also that the cloth placed by the defendant over the patient's arm when heat was applied was a dirty, infected rag and caused the scarlet fever that developed while the patient was under treatment. The defendant's testimony, however, was to the effect that he had used a piece of stockinet and not an infected rag. It was shown, too, that the period of incubation for scarlet fever is from four to six days and that the patient did not develop the disease until ten days after the allegedly infected cloth had been used. The plaintiff, said the Supreme Court, failed to prove that negligence on the part of the defendant was responsible for the scarlet fever from which the patient suffered.

The plaintiff offered but one expert witness, and under cross-examination his testimony failed to support the plaintiff's

charges. The plaintiff relied therefore, so far as related to his charge of negligence, on previous decisions of the court holding that no expert testimony is necessary in a case in which no question of skill, judgment or practice beyond the knowledge of laymen is involved. The only inference that could be drawn from the scar on the patient's arm or hand, the plaintiff claimed, was that the defendant was negligent. A burning, the Supreme Court admitted, may be so severe and due to such negligence that the case is not exclusively one of medical knowledge. The burning in the instant case, however, was not of that character; the question of negligence was one exclusively for expert testimony. The plaintiff presented but one medical witness and he, when informed of the type of therapeutic lamp used, absolved the defendant from any negligence in connection with its use. There was no evidence to show that the defendant's handling of the blister was not in accord with recognized standard practice in the community.

The judgment of the circuit court, Wayne County, in favor of the defendant, was affirmed.—*Rubenstein v. Purcell (Mich.)*, 267 N. W. 646.

Taxes: Municipality's Right to Impose Occupation Tax on Dentists.—A Kansas law authorizes cities of the second and third class to classify and license for purposes of regulation or revenue any and all occupations, businesses or professions carried on within its corporate limits which are not prohibited by law or which are not specifically or exclusively reserved to the state or county as objects of taxation or regulation. Under this law, the city of Independence by ordinance imposed a license tax on certain named professions, including dentistry. The defendant, a dentist, apparently refused to pay the tax and the city instituted the present proceedings against him to collect the tax and to enjoin him from practicing dentistry until the tax was paid. The trial court gave judgment for the defendant, and the city appealed to the Supreme Court of Kansas.

The fact that the practice of dentistry, said the court, is regulated by a state statute which exacts a license fee of dentists does not exempt dentists from the imposition of the occupation tax sought to be imposed by the city ordinance. A license fee was differentiated from an occupational tax in *Duff v. Garden City*, 122 Kan. 390, 251 P. 1091, as follows:

The question of whether or not the city ordinance is in conflict with the state law depends largely upon whether the charge is an occupation tax or a license fee—whether it is a revenue measure wholly or in substantial part regulatory. If it is an occupation tax, it is not within the prohibition of the statute cited, but, if it is wholly or in part a license fee, regulatory in character, it conflicts with the statute and is invalid. . . .

A regulation charge is one exacted for a privilege or as a condition precedent to the carrying on of the business, and is an exercise of the police power, while an occupation tax is imposed under the power of taxation. 6 Words and Phrases, First Series, p. 4908.

The dental practice act nowhere prohibits a city from imposing an occupational tax for revenue, nor does it reserve to the state the matter of taxing a dentist. The ordinance passed by the city of Independence was held to be valid.—*City of Independence v. Hindenach (Kan.)*, 61 P. (2d) 124.

Society Proceedings

COMING MEETINGS

- American Association for the Study of Neoplastic Diseases, Baltimore, June 24-25. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N. W., Washington, D. C., Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson L. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Maine Medical Association, Belgrade Lake, June 20-22. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.
- Montana Medical Association of, Great Falls, July 13-14. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.
- Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rocky Mountain Medical Conference, Denver, July 19-21. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

13: 387-510 (April) 1937

Orthodiagraphic Study of 291 College Students Who Showed No Evidence of Heart Disease. J. Edelken and F. C. Wood, Philadelphia.—p. 387.
Cardiac Psychosis and Symptom of Anxiety. J. Wortis, New York.—p. 394.

*Mechanism of Impaired Auriculoventricular Conduction in Acute Rheumatic Fever. H. G. Bruenn, New York.—p. 413.

Dissecting Aneurysm of Aorta, Correctly Diagnosed: Description of Sign Heretofore Not Mentioned. H. Roesler, U. G. Gifford and W. Betts, Philadelphia.—p. 426.

Clinical Value of Comparative Measurements of Pressure in Femoral and Cubital Veins. E. B. Ferris Jr., Cincinnati, and R. W. Wilkins, Boston.—p. 431.

Value of Direct Venous Pressure Estimations in Ambulatory Cardiac Patients. A. R. Berger, New York.—p. 440.

Transitions Between Normal Sinus Rhythm, Ventricular Escape, Auriculoventricular Nodal Rhythm and Auriculoventricular Dissociation: Report of Twelve Cases, Including Seven Showing Interference Dissociation. F. B. Cutts, Providence, R. I.—p. 451.

*Constriction of Pulmonary Artery by Adhesive Pericarditis. B. A. Gouley, Philadelphia.—p. 470.

Clinical Observations in Erythromelalgia and Method for Its Symptomatic Relief. I. Mufson, New York.—p. 483.

Impaired Auriculoventricular Conduction in Rheumatic Fever.—Bruenn observed twenty-two patients with acute rheumatic fever, twenty of whom showed evidence of cardiac damage by the presence of valvular defects. Each patient showed impairment of auriculoventricular conduction in the electrocardiogram. The degree of block varied from prolongation of the PR interval above 0.2 second to incomplete heart block. None of the patients had received digitalis or quinidine. Salicylates were being administered to more than half of them at the time of the observations. The conduction times in these patients and in a control group of seven subjects of comparable age without evidence of heart disease, whose electrocardiograms were normal, were studied after the intravenous injection of atropine or the subcutaneous injection of epinephrine. Two control electrocardiograms were taken, one hour apart. Further records were then made at intervals of from one to four minutes during the periods of observation. Atropine completely abolished the conduction defect in nineteen of the twenty-two patients studied. There was a marked diminution in the degree of block in the one patient to whom the drug was given intramuscularly. In one of the two patients who did not show a reduction in the degree of block after atropinization, the impairment persisted for a year and was probably due to organic changes in the junctional tissues. Three patients, in addition to impairment of auriculoventricular conduction, also showed delay in intraventricular conduction. Atropine had no effect on this disturbance. In three persons who gave evidence of emotional stress at the time of the observations, marked reductions in the PR intervals were noted, despite little or no acceleration of the ventricular rate. Small doses of epinephrine, injected subcutaneously, in five cases produced results similar to those observed in a control group. Larger doses either diminished the conduction defect (two cases) or markedly increased it (three cases). The latter result was not seen in a control group under similar conditions. After moderate exercise, there was some decrease in the PR interval, with a slight increase in the ventricular rate. It was concluded that in cases of acute rheumatic fever impairment of auriculoventricular conduction is due, in part at least, to an increase in vagal tone. It was suggested that the focus of vagal irritation lies in the medulla.

Constriction of Pulmonary Artery by Adhesive Pericarditis.—Gouley discusses a pericardial involvement, observed in six cases, that affects the pulmonary artery. The adhesions which at times surround this artery may be dense and may

actually compress and narrow the vessel to a striking degree. They are almost certainly the cause of physical signs which in his opinion are sufficiently definite to warrant a clinical diagnosis of pulmonary arterial constriction. The pericardial lesions were caused by rheumatic fever. The fundamental pathologic lesion is massive mediastinopericarditis, in which thick, adherent scar tissue surrounds and constricts the pulmonary artery. The pericarditis is rarely limited to the pulmonary artery. Constriction of other vascular trunks may be present. Histologic examination of the pulmonary artery in two cases revealed focal degeneration in the media, involving both muscle and elastic tissue. Examination of the pulmonic area by means of palpation, percussion and auscultation will reveal a variable number of physical signs: (1) a harsh systolic murmur in the pulmonic area, in the second and third left interspaces, (2) a greatly accentuated second pulmonic sound, (3) a diastolic shock in the same area, (4) a systolic pulsation coincidental with the systolic murmur, extending upward in the third and second left interspaces in the direction of the pulmonary artery, which may be followed by (5) a successive retraction of those interspaces, pulsation and retraction having a sinuous appearance, (6) the presence in a few cases of a systolic thrill palpable in the area of the systolic murmur and pulsation and (7) increase in the area of cardiac dullness in the third left interspace indicative of hypertrophy and dilatation of the right ventricle (conus portion). While four patients died relatively early in the course of their rheumatic disease with recurrent acute infection, mechanical obstructive heart failure was probably only incidental or at most contributory to the final outcome. In two patients, however, the adhesive pericarditis with compression of the pulmonary artery was a major factor in the development of cardiac failure.

American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

4: 83-148 (April) 1937

Study of Glycemic Response in Patients with Biliary Tract Disease. H. A. Rafsky, New York.—p. 83.

Studies on Neutralization Test of Gastric Acidity in Relation to General Disease. K. Phillips, Miami, Fla.—p. 87.

Acidity Reduction Test versus Fractional Test Meal. F. L. Apperly, Richmond, Va.—p. 91.

Relation Between Acid-Base Equilibrium and Gastric Bacterial Flora. M. Hood and L. Arnold, Chicago.—p. 95.

Colloidal Aluminum Hydroxide in Treatment of Peptic Ulcer. C. R. Jones Jr., New Orleans.—p. 99.

Review of Intra-gastric Photography. B. M. Bernstein, Brooklyn.—p. 102.

Alcohol as a Stomachic. L. Krueger and F. C. MacIntosh, Montreal.—p. 104.

Observations on Parenteral Administration of Fat Emulsions. J. K. Narat, Chicago.—p. 107.

*Pruritus Ani: Preliminary Report of 133 Cases Using Triple Distilled Water. H. E. Bacon, Philadelphia.—p. 109.

Renocolic Fistula: Report of Instance Roentgenologically Simulating Carcinoma of the Colon. M. Feldman, Baltimore.—p. 110.

Study of the Cardia. W. Zeller and G. E. Burget, Portland, Ore.—p. 113.

Pruritus Ani.—The method that Bacon employs in the treatment of pruritus ani is as follows: The patient is placed in an exaggerated left lateral position. The quadrant causing the most distress, or the one appearing most inflamed, is selected for the first injection. The area is swabbed briskly with alcohol or tincture of green soap and dried with sterile gauze. A point just beyond the periphery of the pruritic zone is selected and touched with tincture of iodine. This is wiped off with alcohol, and when the skin has dried an intradermal wheal is made with 1 per cent procaine hydrochloride by means of a small hypodermic needle. A 21 gage needle, 2½ inches in length, to which is attached a syringe containing 1 cc. of the procaine hydrochloride, is slowly advanced beneath the pruritic skin. At this point the procaine hydrochloride is deposited. The needle is held in situ and a 10 cc. syringe containing 10 cc. of triple distilled water is substituted. The contents are slowly injected until the entire amount is used. Should pain or discomfort attend its introduction, injection is suspended for a few seconds. Each quadrant is similarly treated at intervals of three or four days, until a series of eight injections has been given, or until the patient is symptom free. In more than 50 per cent of his 133 cases the author employed only 5 cc. of the distilled water. The duration of symptoms

ranged from nine months to twenty-three years. Following a period of from thirty to thirty-six months, 94.3 per cent of the patients were benefited. Of these, some were completely symptom free and some were improved.

American Journal of Psychiatry, New York

93: 1009-1264 (March) 1937

- Review of Physical-Chemical Studies in Epilepsy. M. Brown and H. A. Paskind, Chicago.—p. 1009.
- Conduct Disorders of Intellectually Subnormal Children: Study of Correlations of Intelligence Levels of Eighty to Eighty-Nine, to Behavior Disorders of Children. L. A. Lurie, Cincinnati.—p. 1025.
- Folie à Deux: Induced Psychoses with Report of Case. S. K. Pollack, Milwaukee.—p. 1039.
- Study of Cases of Folie à Deux. M. M. Grover, Wingdale, N. Y.—p. 1045.
- Apraxias and Other Neurologic Sequels of Carbon Monoxid Asphyxia: Report of Case. I. C. Nichols and Margaret Keller, Providence, R. I.—p. 1063.
- Biochemistry of Psychoneuroses: Review. R. A. McFarland and H. Goldstein, New York.—p. 1073.
- Psychiatric Technic for Examination of Criminals. L. S. Selling, Detroit.—p. 1097.
- Age-Incidence Principle of Investigation in Evaluating Biologic Significance of Inherited Variations in the Problems of Human Constitution: I. Types of Scapulas. W. W. Graves, St. Louis.—p. 1109.
- Body Build of the Male Homosexual: Note. J. Wortis, New York.—p. 1121.
- The Life and Work of Richard Maurice Bucke: An Appraisal. G. H. Stevenson, London, Ont.—p. 1127.
- Group Activities on a Children's Ward as Methods of Psychotherapy. Lauretta Bender, New York.—p. 1151.
- Endocrine Disturbances in Behavior Problems. M. Molitch, Jamesburg, N. J.—p. 1175.
- Studies in Endocrine Therapy in Epilepsy: Second Report. C. Stein, Palmer, Mass.—p. 1181.
- Psychiatric Facilities In and About Pittsburgh. C. C. Wholey, Pittsburgh.—p. 1185.
- Psychiatric Studies in Medical Education: II. Neurotic Trends in Senior Medical Students. E. A. Strecker, K. E. Appel, H. D. Palmer and F. J. Braceland.—p. 1197.
- Mortality Among Patients with Involution Melancholia. B. Malzberg.—p. 1231.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

18: 193-256 (April) 1937

- The Blanket Method of Inducing Artificial Fever. N. N. Epstein, San Francisco.—p. 199.
- *Carbon Arc Treatment in Pulmonary and Pleuritic Tuberculosis. A. L. Banyai, Wauwatosa, Wis.—p. 205.
- Diathermy in Biliary Tract Disease. H. A. Rafsky, New York.—p. 214.
- Electrophoresis in Physical Therapy. K. Harpuder, New York.—p. 221.
- *Effects of Acetyl Beta-Methylcholine Iontophoresis in Arthritis. L. Martin and G. O. Eaton, with assistance of H. Ruland and L. Ruland, Baltimore.—p. 226.
- Treatment of Cancer of Head, Face and Neck. A. F. Tyler, Omaha.—p. 233.

Carbon Arc Treatment in Tuberculosis.—Banyai used carbon arc irradiation in the treatment of ninety-four patients who had pulmonary tuberculosis and twenty-one who had tuberculous pleurisy. The two main factors on which the success or failure of this treatment depends are careful selection of cases and proper technic. Minimal, moderately advanced and even far advanced cases may benefit by this treatment, provided the temperature is not more than 99.5 F. and the general physical condition is satisfactory. Patients with fibrosing or exudative lesions, including cavities, may respond favorably. When one is deciding the problem of the suitability of this treatment, the sedimentation test, the Arneth or Schilling count, the total leukocyte count and the monocyte-lymphocyte ratio are of value. A high leukocyte count, marked "shift to the left" in the Arneth or Schilling count and a greatly increased monocyte-lymphocyte ratio contraindicate irradiation. Other contraindications are fever, rapidly advancing pulmonary tuberculosis, large cavities, acute stage of tuberculous pleurisy, poorly compensated cardiac lesion, marked general debility and ankyloidosis. The adequate dose cannot be predetermined. The optimal exposure is the minimal exposure that elicits the desired therapeutic response. Many failures are caused by prolonged overexposure. Reactions, in general, are most likely to occur in cases of far advanced or exudative lesions. Minor reactions that did not necessitate the discontinuance of the treatment occurred in twenty-five cases, and the treatment was stopped because of reactions in thirteen. The variable course of pulmonary tuberculosis, under any regimen, calls for a close analysis of reaction-like incidents during treatment with a carbon arc lamp. Pulmonary hemorrhage was not more frequent

during treatment than without it. Analysis of the end results in a group of thirty-eight patients whose treatment lasted from three to six months showed that one minimal case became apparently arrested; of the eighteen moderately advanced cases, seven became apparently arrested, two quiescent, three improved and six remained stationary; of the twelve far advanced cases four improved, six remained stationary, one became worse and one patient died. All patients with tuberculous pleurisy made a complete recovery.

Acetyl Beta-Methylcholine Iontophoresis in Arthritis.—Martin and his associates present the results obtained by the treatment of twenty-eight men and fifty-five women having chronic forms of arthritis by means of iontophoretic administration of acetyl- β -methylcholine. They used a 45 volt B battery, with rheostatic control, and an attached ammeter capable of measuring in milliamperes. The material to be electrolyzed, physiologic solution of sodium chloride or 0.25 or 0.5 per cent acetyl- β -methylcholine, was applied to the skin by means of asbestos paper which had been soaked in the desired solution. The circuit was closed and the amperage was slowly raised to 20 or 30 milliamperes, depending on the local sensation of the patient, and kept there for twenty minutes. Generally the patient felt a mild prickling or trickling sensation until the current became constant. Of the patients with infectious arthritis, 57 per cent were improved and some became symptom free; 79 per cent of those with metabolic forms of arthritis were helped and some also became symptom free. The mode of action of the drug is not understood, but it seems likely that it has a stimulating action on the muscles innervated by the parasympathetic system. It is probably not the result of a purely local change alone.

Journal of Bacteriology, Baltimore

33: 339-450 (April) 1937

- Decomposition of Carbohydrates and Alcohols with Production of Gas at 46 C. by Members of Genus *Escherichia*. A. A. Hajna, Baltimore.—p. 339.
- Bacterial Variation as Studied in Certain Unstable Variants. M. W. Deskowitz, New York.—p. 349.
- Contagious Tumor-like Condition in Lizard (*Anolis Equestris*) as Induced by New Bacterial Species, *Serratia Anolium* (sp. n.). F. Duran-Reynals and H. J. Clausen, New York.—p. 369.
- Lipolytic Action of Staphylococci on Some Pure Triglycerides. R. E. Trussell and L. A. Weed, Iowa City.—p. 381.
- Viability of Bacteria in Sea Water. S. A. Waksman and Margaret Hotchkiss.—p. 389.
- Adsorption of Bacteria by Inert Particulate Reagents. J. B. Gunnison and M. S. Marshall, San Francisco.—p. 401.
- Simple Method for Preserving Bacterial Cultures by Freezing and Drying. H. F. Swift, New York.—p. 411.
- Gram-Negative Bacterioides of Intestine. J. E. Weiss and L. F. Rettger, New Haven, Conn.—p. 423.
- Relation of *Bacillus Siamensis* and Similar Pathogenic Spore-Forming Bacteria to *Bacillus Cereus*. F. E. Clark.—p. 435.
- Actions Taken by Second International Microbiologic Congress in London, 1936, Regarding Bacteriologic Nomenclature. R. St. John-Brooks and R. S. Breed.—p. 445.

Journal of Pediatrics, St. Louis

10: 437-576 (April) 1937

- *Protamine Insulin: Its Use in Children. Alvah L. Newcomb, Chicago; M. W. Dick, Iowa City, and Louise Schnute, Chicago.—p. 437.
- Clinical Experience with Protamine and Crystalline Insulin in Treatment of Diabetes Mellitus in Children. W. E. Nelson and C. Dummer, Cincinnati.—p. 446.
- Natural History of Rheumatic Fever in the First Three Decades. May G. Wilson, New York.—p. 456.
- Body Temperature Variations in Apparently Healthy Children. F. van der Bogert and C. L. Moravec, Schenectady, N. Y.—p. 466.
- Newer Aspects of the Whooping Cough Problem. J. A. Toomey, Cleveland.—p. 472.
- Streptococcus Haemolyticus Meningitis, with Recovery Following Mastoidectomy and Intrathecal Administration of Lyophilic Convalescent Scarlet Fever Serum. J. P. Scott and S. X. Radbill, Philadelphia.—p. 476.
- Congenital Duodenal Atresia. J. Rose and A. M. May Jr., Washington, D. C.—p. 490.
- *Clinical Study of Apple Diet in Treatment of Diarrhea in Infants. E. E. Smith and R. I. Fried, Columbus, Ohio.—p. 495.
- Brain Tumors from the Pediatrician's Point of View: Report of Ten Cases. K. Habel, Philadelphia.—p. 502.
- IV. Treatment with Gonadotropic Hormone (Anterior Pituitary-like) of Nonadipose Boys Showing Genital Dystrophy. G. B. D.-H. Brooklyn.—p. 517.
- The Future of Pediatrics. J. L. Morse, Boston.—p. 529.

Protamine Insulin.—Newcomb and his co-workers have used protamine insulin in the treatment of thirty-two patients with juvenile diabetes mellitus. The diets were essentially

unaltered for the hospital patients with the change to protamine insulin, although in a few instances redistribution of the carbohydrate between the three meals was found advantageous. Over 2,000 determinations of the blood sugar were made in this study. Estimations of the urinary sugar were made on six hour specimens by Benedict's method. Observations of the effect of varied schedules and types of protamine insulin were carried out. During the first few days after the change from regular to protamine insulin, a higher sugar content was not infrequent, possibly owing to delayed absorption of part of the insulin for more than twenty-four hours. Ketosis developed in one patient, an infant treated for a few days in the home; in this case other factors were felt to be responsible. No allergic manifestations or local reactions were seen. Increased irritability was observed in two children. Many patients did not experience periods of intense hunger, as they did while receiving regular insulin. In instances in which all the insulin could be administered in the morning, the children showed more emotional stability. In twenty-three of thirty-two cases studied, satisfactory control was obtained by a single morning dose. The afternoon and evening activities did not need to be so carefully restricted. During the summer there was a definite decrease in the total dose of protamine insulin, but after the children returned to school an increase in insulin was required.

Apple Diet in Diarrhea in Infants.—Smith and Fried's study is based on ninety cases of enteral, parenteral and irritative-fermentative infection. Seven infants who were admitted in a moribund condition, with acute alimentary intoxication, four patients with proved dysentery and one infant with what clinically resembled dysentery died in spite of the administration of apple diet, specific serum, transfusions and supportive measures. The average length of time that apples were given in cases of fermentative-irritative diarrhea was from seven to eight days, the first formed stool appearing between the fifth and the eighth day. One death occurred in this group. In six cases believed to have the same cause, a starvation period of twenty-four hours was followed by a protein milk formula. No deaths occurred in this group. Eleven infants with diarrhea of infectious origin were treated with scraped raw apple. One infant in this group died. In all, twenty-eight infants, excluding the patients with dysentery, were treated by an apple diet and twelve by starvation followed by the administration of protein milk. There were no striking differences in results. Those in the dispensary were better than those in the hospital. The majority of the patients treated in the dispensary showed improvement in from two to four days, regardless of which mode of therapy was followed.

Journal of Urology, Baltimore

37: 407-604 (April) 1937

- Renal Atrophy. R. E. Cumming and C. F. Schroeder, Detroit.—p. 407.
*Diagnosis and Treatment of Trauma to Kidney. A. H. Wood, Baltimore.—p. 437.
Experimental Study of Injuries of Kidney. W. C. Stirling and A. M. Lands, Washington, D. C.—p. 466.
*Metastatic Pulsating Tumors of Sternum Secondary to Renal Hypernephroma. L. J. Roth and H. B. Davidson, Columbus, Ohio.—p. 480.
Solitary Renal Cysts. R. H. Herbst and H. J. Polkey, Chicago.—p. 490.
Primary Papillary Carcinoma of Ureter. W. N. Taylor and C. A. Kuehn, Columbus, Ohio.—p. 504.
Treatment of Neurogenic Vesical Dysfunction Complicated by Lesions of Vesical Outlet. C. D. Creevy, Minneapolis.—p. 513.
Vesicodiverticulovaginal Fistula: Report of Case. E. O. Swartz, Cincinnati.—p. 518.
Arterial Distribution Within Prostate Gland: Its Role in Transurethral Prostatic Resection. R. H. Flocks, Iowa City.—p. 524.
Prostatic Resection: Review. G. R. Livermore, Memphis, Tenn.—p. 549.
The Prostatic Problem. W. E. Lower, Cleveland.—p. 555.
Intraprostatic Injection: Experimental Study: Further Observations. V. J. O'Connor and R. L. Ladd, Chicago.—p. 557.
Relief of Postprostatectomy Vesical Dysfunction by Transurethral Surgery. J. L. Emmett, Rochester, Minn.—p. 569.
Involvement of Upper Part of Urinary Tract Associated with Uterine and Ovarian Tumors. H. L. Morris and Valeria R. Juracek, Detroit.—p. 582.
*Water Metabolism in the Surgical Patient. R. M. Nesbit, Ann Arbor, Mich.—p. 588.
Factors Influencing Solubility of Relatively Insoluble Salts in Urine. I. R. Siek and O. Toenhart, Madison, Wis.—p. 595.

Diagnosis and Treatment of Kidney Trauma.—Wood asserts that immediately after an injury to the kidney the patient is in shock, complains of pain on the injured side and notes the presence of blood in the urine. There are changes in the pulse

rate, blood pressure and blood picture, depending on the length of time following the injury, the extent of the injury and the degree of hematuria and shock. There is generally abdominal pain associated with tenderness or rigidity, which later may become unilateral or localized over the injured area; and in severe injury to the kidney, not infrequently a mass is present in the loin. Gross or scanty hematuria is present but should not be interpreted as an index to the extent of the injury. In occasional cases emergency methods must be employed immediately to combat shock, arrest hemorrhage and handle associated injuries of the viscera. When plain roentgenograms disclose a mass with obliteration of the psoas muscle shadow, an excretory urogram is indicated. In the author's series of twenty-five cases, excretory urography was employed in seventeen. Diagnostic shadows were disclosed in twelve cases on the injured side, and in three cases a preoperative diagnosis of ruptured kidney was made possible. Of five patients whose excretory urograms failed to reveal satisfactory shadows, three recovered without operative intervention and two had the kidney removed. Parenchymal damage of the kidney results in complete or temporary anuria, hindering the excretion of the opaque solution and increasing the difficulty of interpretation of the films. This is to be expected in cases of severe trauma and in cases of marked contusions without rupture of the renal pelvis. Sufficient opaque solution is excreted by the uninjured portion of the kidney ruptured transversely to outline the point of rupture. Strict attention to the clinical course is imperative, and examinations at frequent intervals are essential when one is outlining the course of treatment. Absolute rest in bed is essential until hematuria ceases and all symptoms have subsided. Pain is controlled by morphine. Body fluids are supplied by increasing the fluid intake by mouth or by subcutaneous infusion. Abdominal distention and intestinal evacuation are handled preferably by enemas rather than by drastic purgation. An operation should be performed immediately in desperate cases only, and a blood transfusion should be given during the operation. There were three deaths among the twenty-five cases, two operative and one nonoperative. One operative death was due to head injury and the other to postoperative pneumonia. The nonoperative death was due to unrecognized rupture of the kidney, injury to the peritoneum and the mesentery.

Metastatic Pulsating Tumors of Sternum.—Roth and Davidson report the presence of a pulsating tumor of the sternum metastatic from a hypernephroma. The development of cerebral symptoms suggestive of a tumor of the brain was ascribed to another metastasis from the same primary tumor. However, the necropsy demonstrated that this was not the cause and that the cerebral symptoms were produced by a separate primary neoplasm—an astrocytoma. Although it is theoretically possible for a metastatic hypernephroma of the sternum to be a solitary metastasis and for surgical removal of this tumor together with removal of a recognized primary tumor to result in a cure, it seems that small primary growths, difficult to demonstrate, are more apt to be complicated by osseous metastases. Five of the six reported cases appear to substantiate this conclusion, since in none was there any clinical evidence of renal pathologic changes; the authors' case is exceptional in that clinical symptoms directed their attention to the kidney. What clinically appears to be a solitary metastasis from a hypernephroma may in reality be accompanied by multiple hidden metastases, and therefore surgical intervention is inadvisable. In the presence of a demonstrable metastasis from a hypernephroma, irradiation is indicated as a palliative measure.

Water Metabolism in Surgical Patients.—Nesbit studied a series of patients undergoing a variety of surgical operations to determine the amount of fluid lost during operation and the immediate postoperative period. The average loss of fluid by vaporization was 700 cc., and the average total loss of fluid, including blood, vomitus, urine and vaporization, was 1,000 cc. It is thus obvious that an imbalance between available fluids and total fluids lost is considerable. The fluid lost can be reduced if the extra blankets of the old-fashioned "ether bed" are done away with and the patient is transferred directly from the operating table to a bed warmed with hot water bottles. In considering available water for the surgical patient, it must

be remembered that the usual 1,000 to 1,500 cc. available from the food of a normal diet may be lacking entirely because of dietary restrictions. Patients who enter the hospital in a dehydrated condition present an additional problem in water balance. Water balance studies on normal subjects showed that signs of serious dehydration were produced when the water loss was equal to approximately 6 per cent of the body weight. This loss should be restored by additional fluid intake.

Nebraska State Medical Journal, Lincoln

22: 121-164 (April) 1937

- Hemochromatosis. A. Sachs and B. C. Russum, Omaha.—p. 121.
Peripheral Vascular Disease: III. Arteriosclerosis Obliterans. C. W. McLaughlin Jr., Omaha.—p. 127.
Contraception and the Rhythm. R. J. O'Donnell, Columbus.—p. 132.
Value of True Lateral View of Duodenum. A. F. Tyler, Omaha.—p. 134.
Roentgen Diagnosis of Esophagus. A. P. Overgaard, Omaha.—p. 136.
Metastatic Carcinoma of Choroid: Report of Two Cases. C. M. Swab, Omaha.—p. 140.

New England Journal of Medicine, Boston

216: 681-726 (April 22) 1937

- Granulosa Cell Tumors of the Ovary: Report of Three Recent Cases. J. V. Meigs and L. Parsons, Boston.—p. 681.
Factor of Mental Stress in Essential Hypertension. R. S. Palmer, Boston.—p. 689.
Human Autonomic Pharmacology: IV. Effect of Benzedrine Sulfate on the Gallbladder. P. G. Schube, M. Ritvo, A. Myerson and Ruth Lambert, Boston.—p. 694.
Treatment of Constipation. A. G. Brailley, Boston.—p. 697.

Pennsylvania Medical Journal, Harrisburg

40: 491-596 (April) 1937

- Treatment of Asthma on Etiologic Basis. L. N. Gay, Baltimore.—p. 491.
Accurate Diagnosis of Hay Fever. J. A. Clarke Jr. and A. L. Bolden, Philadelphia.—p. 498.
Role of Allergy in Medical Practice. L. H. Criepp, Pittsburgh.—p. 502.
Glucose Tolerance and Metabolism in Allergic Individual: Report of Glucose Tolerance Observations in 600 Patients. H. B. Wilmer and M. M. Miller, Philadelphia.—p. 505.
Spasmodic Torticollis and Its Relief. J. T. Rugh, Philadelphia.—p. 511.
*Observations on the Female Bladder and Urethra. T. R. Fetter and C. I. Lintgen, Philadelphia.—p. 515.
Benign Lesions of the Breast. E. P. Buchanan, Pittsburgh.—p. 521.
Relation of the Physician to Social Security. F. F. Borzell, Philadelphia.—p. 525.
Nephrostomy and Large Renal Calculus. J. B. Lownes and E. Bloom, Philadelphia.—p. 528.

Female Bladder and Urethra.—In a study of 395 female patients with urinary disturbances (250 in the gynecologic clinic and 145 in the urologic clinic), Fetter and Lintgen observed that the bladder was entirely responsible for the symptoms in forty and the urethra in fifty-six cases. Both organs were partly responsible for the symptoms in 189. Lesions of the generative organs were responsible etiologic factors in thirty-nine cases. Other organs not connected with the urinary and generative tracts caused the symptoms in nine. The most prominent symptom was frequency of urination. For a correct diagnosis it is necessary to obtain a thorough urinary and gynecologic history and a catheterized specimen of urine. Urinary symptoms during parturition or the puerperium may be due to infection, obstruction or injury to the bladder, trigon or sphincter muscle of the urethra following delivery. Intravenous urography, cystography and urethrography will often demonstrate the lesion.

Psychiatric Quarterly, Utica, N. Y.

11: 181-332 (April) 1937

- Review of Activities of Psychiatric Institute During the Past Year. N. D. C. Lewis, New York.—p. 181.
Pseudopsychoprenia: Schizophrenia Engrafted on Mental Deficiency. P. Milici, Kings Park, N. Y.—p. 190.
Prolonged Sedation with Sodium Barbitol of Male Disturbed-Continued Treatment Patients. P. Polatin, Brentwood, Long Island, N. Y.—p. 213.
The Concept of Catatonia. G. S. Sprague, White Plains, N. Y.—p. 222.
Studies in Obsessive Ruminative Tension States: III. Effect of Erratic Discipline in Childhood on Emotional Tensions. L. F. Woolley, Towson, Md.—p. 237.
Dream Studies in Hallucinated Patients: Preliminary Study. C. E. Trapp and R. H. Lyons, Boston.—p. 253.
Technical Approaches Used in Study and Treatment of Emotional Problems in Children. J. Louise Despert, New York.—p. 267.
Family Care of Patients at the Marcy State Hospital. S. W. Bisgrove, Marcy, N. Y.—p. 296.
The Science of the Living Organism: Critique of Kurt Goldstein's Theory. Z. Picrowski, New York.—p. 393.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

12: 295-368 (March) 1937

- Concomitance of Endamoeba Histolytica and Hymenolepis Nana. R. Rodriguez-Molina and W. A. Hoffman, San Juan.—p. 295.
Fever and Schistosomiasis Mansonii: Report of Two Cases. J. Knott, St. Croix, Virgin Islands.—p. 306.
Some Observations on Effects of Environmental Changes on Biology of Endamoeba Histolytica. H. A. Poindexter, Washington, D. C.—p. 314.
Treatment of Experimental Hepatic Insufficiency with Intravenous Injections of Lipoids. J. Surós Forns, Moracho and Pascual, Barcelona, Spain.—p. 348.
Vitamin Content of West Indian Shark Liver Oils: II. Vitamin D Content of Liver Oil of Small Blue Shark. C. F. Asenjo, D. H. Cook and J. H. Axtmayer, San Juan.—p. 358.

Virginia Medical Monthly, Richmond

64: 65-122 (May) 1937

- I. Incidence and Importance of Pneumonia. H. B. Mulholland, University.—p. 65.
II. Diagnosis of Lobar Pneumonia. H. Walker, Richmond.—p. 66.
III. General Care of Pneumonia. P. S. Smith, Abingdon.—p. 69.
IV. Special Therapeutic Procedures in Care of Pneumonia. W. B. Martin, Norfolk.—p. 73.
Mortality of Lobar Pneumonia in Piedmont Virginia: Analysis of 310 Adult Cases. S. D. Blackford, University.—p. 76.
The Problem of Nonunion in Fracture of Neck of Femur. P. C. Colonna, New York.—p. 77.
Treatment of Arthritis. J. R. Hamilton, Nassawadox.—p. 81.
Treatment of Pulmonary Tuberculosis. D. B. Cole and W. L. Nalls, Richmond.—p. 85.
Werdnig-Hoffman Familial Progressive Muscular Atrophy. T. D. Walker Jr., Newport News.—p. 90.
Tetanus and Differential Diagnosis: Report of Two Cases. W. O. Porter, Roanoke.—p. 92.
Intestinal Bleeding. O. L. Hite, Richmond.—p. 94.
Treatment of Bacillary Dysentery in Infants: Note on Use of Fluids. W. E. Keiter, Kinston, N. C.—p. 99.
Some Phases of School Medical Work. C. L. Outland, Richmond.—p. 100.
Practicing Physician's Part in Preventive Medicine. L. L. Parks, Tarboro, N. C.—p. 103.

West Virginia Medical Journal, Charleston

33: 193-240 (May) 1937

- Treatment of Fracture of Neck of Femur. C. L. Scudder, Boston.—p. 193.
Blood Supply to Proximal End of Femur and Its Relation to Fractures of Neck of Femur. S. B. Chandler, Morgantown.—p. 197.
*Pulmonary Symptoms Resulting from Ulceration of Hilar Lymph Nodes into a Bronchus. P. P. Vinson and E. C. Toone, Richmond, Va.—p. 200.
Tuberculin Testing and Its Relation to a Public Health Program in Control of Tuberculosis. R. A. Burdette, Morgantown.—p. 202.
Cancer of Stomach. J. E. Cannaday, Charleston.—p. 206.
Neoplasms of Ovary. C. C. Fenton, Morgantown.—p. 215.
Acute Lymphatic Leukemia: Case Report. L. F. Dobbs Jr., Huntington.—p. 218.
Bloody Pleural Effusion: Case Report. P. M. Huddleston, Huntington.—p. 220.
Erysipelas: Case Report. F. L. Coffey, Huntington.—p. 222.

Pulmonary Symptoms from Ulceration into a Bronchus.—According to Vinson and Toone, ordinary methods of examination fail to reveal the cause of many pulmonary symptoms. A cough, fever, hemoptysis and thoracic pain may be present without evidence of thoracic disease on physical or roentgenoscopic examination. Unless a chronic pulmonary lesion is associated with tubercle bacilli in the sputum, direct visualization of the tracheobronchial tree is indicated. Although roentgenoscopic study of the lungs following the injection of iodized oil into the tracheobronchial tree may reveal obstruction or dilatation of the bronchi, it is rarely possible to determine with accuracy the cause by this method of examination alone. Bronchoscopy is necessary for diagnosis in cases of ulceration of hilar lymph nodes into a bronchus. The underlying cause of this lesion is usually tuberculosis, which produces erosion of the wall of the bronchus. Enlargement of nodes resulting from lymphoblastoma may produce ulceration of the wall of the bronchus with spontaneous expulsion of a portion of the node. The diagnosis of this disease has also been made by removal of a portion of the gland which was seen at bronchosopic examination. Tuberculous nodes without calcification may protrude through the wall of a bronchus and are always located on the mesial wall of a main bronchus, bleeding readily when traumatized. Many of them are associated with pulmonary hemorrhage. The authors have not been able to prove the tuberculous nature of these lesions by examination of tissue during life, but in two instances tuberculosis of the hilar nodes was demonstrated at necropsy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

11: 219-242 (April) 1937

- Low Intensity Short Waves (11.3 Meters): Preliminary Observations Concerning Their Effects on Living Tissues. P. P. Dalton.—p. 221.
Electrotherapy Papers: Number Two. Ultraviolet Irradiation: Technique of Application. A. P. Cawadias.—p. 235.
Electromedical Apparatus: Its Character, Operation and Care: Number One. Galvanic Current. L. G. H. Sarsfield.—p. 229.
Industrial Medicine: Modern Rheumatic Clinic. D. Stevenson.—p. 233.
Passive Vascular Exercises: Experience with the Herrmann Pavaex. O. Leyton.—p. 236.

British Medical Journal, London

1: 651-694 (March 27) 1937

- Effect on Eye of Radium Used for Treatment of Malignant Disease in the Neighborhood. Philippa Martin.—p. 651.
*Isolation of Influenza Virus and Relation of Antibodies to Infection and Immunity: The Manchester Influenza Epidemic of 1937. L. Hoyle and R. W. Fairbrother.—p. 655.
Continuous Open Air for Pneumonia in Children. H. L. Wallace.—p. 657.
Auditory Nerve Section in Ménière's Disease. R. Rutherford.—p. 660.
Adrenal Cortex: Note. L. R. Broster and H. W. C. Vines.—p. 662.

Influenza Virus Antibodies.—The recent extensive epidemic of influenza has afforded an opportunity to Hoyle and Fairbrother to confirm the observation of Laidlaw and his colleagues (1933) that the disease is due to a filtrable virus. Their investigations have been directed mainly to the isolation of the virus and to determining the relation between the presence of antibodies and protection. Not only was the virus isolated from a number of cases but there was also a definite increase in the antibody titer of convalescent serums as demonstrated by complement fixation tests. In a few instances it was possible to examine the serum before and after an attack, and in each case an increased titer was recorded. The results suggest that individuals with a low antibody titer are more susceptible to infection than those with a high titer. This may be of some practical value, as recent work indicates that prophylactic vaccination may soon be available for general application. Francis and Magill suggest that this increase in circulating antibodies is accompanied by an increased ability to combat the natural infection. It follows, therefore, that if it is possible to differentiate immune from susceptible persons the application of active immunization will be assisted. The complement fixation test is the most satisfactory of the tests at present available for this purpose. A titer of 1 in 16 or over suggests a high degree of immunity, while it seems probable that titers of 1 in 4 or 1 in 8 may represent an immunity sufficient to prevent infection in a mild epidemic.

Lancet, London

1: 735-792 (March 27) 1937

- Experimental Outlook in Surgery. D. Wilkie.—p. 735.
*Blood Pressure in the Years Following Recovery from Coronary Thrombosis. J. H. Palmer.—p. 741.
Acute Diffuse Nonsuppurative Encephalitis: Two Cases Described. R. L. Knaggs.—p. 745.
Hypoglycemic Shock in Treatment of Schizophrenia: Interim Report on Cases Treated at St. Bernard's (Formerly Hanwell) Hospital for Mental and Nervous Diseases. L. W. Russell.—p. 747.
*Sciatic Scoliosis. E. N. Wardle.—p. 749.
Early Bacteriologic Diagnosis of Diphtheria. W. P. Cargill and G. J. Crawford.—p. 751.

Blood Pressure Following Coronary Thrombosis.—Palmer studied the blood pressure of 212 patients who survived an attack of coronary thrombosis by at least three months. The incidence of hypertension (160 mm. systolic and/or 100 mm. diastolic) as determined by readings made before or at any time after the attack was found to be 73 per cent. More than half the patients showed hypertension during the first year. The hypertensive group included 37 per cent of those less than 50 years of age and from 78 to 84 per cent of those in the next three decades of life at the time of the attack. All except one of the twenty female patients had hypertension. The average course of the blood pressure during ten years after coronary thrombosis (not including the first month following the attack) has been plotted. The systolic pressure showed a slight rise during this period, while the diastolic showed a slight fall. The average blood pressure for the series before the attack was probably about 170/100. Although on the average the

prior levels were not regained during the ten year period, they were in a few cases actually exceeded.

Sciatic Scoliosis.—Wardle tabulates and divides a series of twenty-six cases of sciatic scoliosis into two broad types, those with sciatic pain and an obvious scoliosis and those with sciatic pain in which a slight degree of lateral deviation of the spine became apparent during examination. The clinical observations in these cases oppose the theory that sciatic scoliosis is due to an arthritis of the lumbar intervertebral joints, mainly on the ground that a true arthritis should produce complete limitation of movement; it is unlikely that the symptoms would always be unilateral if arthritis were present, and that, if such arthritic edema were causing pain by compression of nerve roots, it is extraordinary that the fourth and fifth lumbar roots appear to be the only ones ever affected. The direction of the deformity may mean something in elucidating the cause of this condition, for there are two possible explanations of the muscle spasm and deformity. Irritation of the affected nerve roots by pressure could produce muscle spasm reflexly on the same side of the body as the pain, and, in the second place, an involuntary effort on the part of the patient to relieve pressure by opening up the neural foramen on the affected side would produce contraction of the muscles on the opposite side of the body to the pain—a contralateral deformity.

Medical Journal of Australia, Sydney

1: 419-456 (March 20) 1937

- Prevention of Nervous and Mental Disorders: Some Possibilities and Limitations. J. F. Williams.—p. 419.
Metropolitan and Rural Incidence and Distribution of Acute Rheumatism and Rheumatic Heart Disease in New South Wales: Part II. K. Maddox.—p. 425.
Twenty Years of Medical Practice in the Valley of the Nile. J. E. Bateman.—p. 432.
*Nonepidemic Typhus: Report on Fourteen Cases Occurring on the Goldfields, Wau, Mandated Territory of New Guinea, Between Jan. 1, 1935 and June 30, 1936. R. von der Borch.—p. 435.

Nonepidemic Typhus.—Von der Borch observed fourteen cases of a nonepidemic form of typhus, which closely resembles Japanese river fever or tsutsugamushi clinically and serologically. The vector is unknown, but the suggestion is made that it is mite borne, as species of Trombiculae are commonly found on bird, beast and man. There appears to be no seasonal incidence, as cases have been scattered all through the period from January 1935 to June 1936. Fatal termination appears unlikely in robust and moderately young patients, although they may appear very ill. Elderly alcoholic subjects have a poor chance of recovery. Death ensues from toxemia, pneumonia and cardiac failure. All patients have shown a typical lesion, single in thirteen cases and duplicated in only one case. The lesion is always characterized as follows: A central, dry, circular eschar from one-fourth to one-half inch in diameter is surrounded by a dull red ring of lymphangitis approximately one-eighth to one-fourth inch wide, slightly raised above the surface of the skin. From this sometimes radiate short, dull red pseudopodia. The lesion occurred on the axilla in five cases, the calf of the leg in four, the thigh in two cases, the scrotum in two and at the waistline in one case. No cases of typhus have been observed among natives, although a careful watch has been kept. All the cases, with two exceptions, have occurred in and around Wau. The conditions under which infection has apparently occurred are similar in all cases, with the exception of three cases in women. The male patients were associated with work necessitating the clearing of virgin bush for development or prospecting purposes. The incubation time of the disease is difficult to determine, as can be well understood; but from the clear-cut history of one patient who paid a visit to a known infective area on one day only, it is apparently ten days.

South African Medical Journal, Cape Town

11: 71-102 (Feb. 13) 1937

- Preparation for Examinations. R. A. Dart.—p. 71.
Social Objectives of Medical Education. J. Gillman.—p. 75.

Tubercle, London

1S: 289-336 (April) 1937

- Tuberculosis Problem in South Africa. Eva Morton.—p. 289.
The Cytology of Sputum. S. R. Gloyne.—p. 292.
Internal Pneumolysis: Result of 210 Consecutive Operations. F. G. Chandler.—p. 298.
Modified Pneumothorax Apparatus. W. S. Gilmour.—p. 322.

Bulletin Général de Thérapeutique, Paris

187: 465-506 (No. 10) 1937

- Lobectomies and Pneumectomies. H. Descomps.—p. 465.
 *New Treatment of Pulmonary Abscesses: Drainage with Double Elastic Sound. Lévy-Deker.—p. 480.
 Role of Nasal and Pharyngeal Lesions in Etiology of Bronchiectasis and Value of Thermal Sulfur in Its Treatment. R. A. Casaubon.—p. 487.
 Hydatid Cyst of Lung: Case. J. Lanos.—p. 497.

Pulmonary Abscesses.—Lévy-Deker has devised a soft sound to be introduced into the larynx, trachea and bronchi under conditions similar to those in tracheobronchial endoscopy. The small caliber of this sound permits a much deeper penetration (from 10 to 15 cm.) into the bronchial tree and makes it applicable to almost all patients. Owing to the small amount of cocaine employed, the patient sustains no shock and pulmonary infections may be drained that could not otherwise be reached with endoscopy. The sound is made of very fine rubber. It is simple for aspiration and for injection of drugs and is double for lavage. The sound is marked in two places, one at 18 cm. corresponding to the opening of the glottis, the other at 30 cm. indicating the tracheal spur. The remaining 15 cm. is for bronchial catheterization. After nasal and pharyngolaryngeal anesthesia the oiled sound is introduced through the nose until it appears below the uvula. At this moment the patient's tongue is drawn forward and the sound is inserted through the epiglottis into the larynx. The patient takes a deep breath and the sound enters into the trachea; if there is a light coughing reflex a few drops of cocaine solution will subdue it and permit the sound to enter either of the bronchi. All this is done under fluoroscopic control. For aspiration another tube with an aspirator is attached to the sound. Lavage can be performed without fluoroscopic control, the patient lying on the catheterized side and from 60 to 200 cc. of tepid physiologic solution of sodium chloride being injected. In the same manner drugs or opaque fluids may be introduced. However, in certain congestive cases weak solutions of cocaine may not be sufficient or, when the epiglottis is small, a speculum may have to be employed.

Clinique, Paris

32: 117-132 (April) 1937

- Myocardial Infarcts. A. Pruche.—p. 119.
 Cholesterol in Ocular Disorders: Cataract, Arcus Senilis, Glaucoma, Iritis of the Fifties, and so on. A. Cantonnet and Pétavy.—p. 125.
 *Action of Normal Adult Pig Serum in Typhoid. F. Bec and J. Dulcy.—p. 126.

Pig Serum in Typhoid.—Bec and Dulcy observed that during castration of pigs no aseptic precautions are used and that the animal's peritoneum is often soiled with manure. And yet the animals do not contract any disease. There are times when many piglets fall victims to so-called hog cholera, from which the adult pigs are spared. As the symptoms of hog cholera greatly resemble those of human typhoid, the authors conjecture that pigs which have survived the disease are also immune against typhoid. Therefore they doubt whether the *Eberth bacillus* is the cause of typhoid. It may be merely an end result, while the real cause is a filtrable virus or a modified pathogenic colon bacillus. This is the reason why the authors insist on instituting pork serum treatment soon after the typhoid symptoms appear and never wait for sero-diagnostic confirmation. They distinguish two pathogenic germs: virus and bacillus. Vaccination against the bacillus is sufficient to develop resistance. But once the disease is established, pork serum is the only recourse.

Presse Médicale, Paris

45: 505-528 (April 3) 1937

- Influenza: General Review; Experimental Influenza with Ferrets and Mice. A. Bèclère.—p. 505.
 *Lumbar Sympathectomy: Treatment of Pott's Paraplegia. I. Jiano, Z. Iagnov and G. Timus.—p. 508.
 Role of Corticodienecephalic and Diencephalohypophysary Correlations in Regulating Waking and Sleep. A. Salmon.—p. 509.

Lumbar Sympathectomy in Pott's Paralysis.—Encouraged by Diez's reports (1929), Jiano and his associates performed two lumbar sympathectomies in advanced cases of Pott's disease with paraplegia. Both cases showed typical motor, reflex and tactile disorders. Roentgenograms of both showed partial destruction of lumbar vertebrae. A right lum-

botomy was done under ether anesthesia. The sympathetic chain was found between the vena cava and the spinal insertion of the psoas. The sympathetic is isolated by means of small tampons, the communicating branches are sectioned and the sympathetic is extirpated together with the second and third lumbar ganglions. No drain is necessary on closing. Twenty-four hours later the patient is able to move the toes and both feet. On the next day the legs can be flexed. Gradually the amplitude of the movements increases, the reflexes become lively and the Babinski reflex is negative. About two weeks after the operation, the patient can keep upright when supported and even take a few steps. After three months all functions are restored. Owing to persisting vertebral pains, an osteosynthesis was done in one case. The intervention directed against the sympathetic determines a physiologic modification in the blood provision of the spinal cord. The healing of the paraplegia is then explained by the coming into play of a system of arterial anastomoses even when the seat of the vertebral lesion is above the sympathetic level.

45: 585-608 (April 17) 1937

- *Epileptic Crises from Camphor Bromide. P. Pagniez, A. Plichet and A. Varay.—p. 585.
 Study of Lipidoses in Neuropathology: I. Phospholipidoses. L. Van Bogaert.—p. 587.

Epileptic Crises from Camphor Bromide.—Pagniez and his associates warn against the indiscriminate use of camphor bromide and point out its epileptogenic properties. They cite three cases in which camphor bromide was given orally for ailments other than epilepsy and in which epilepsy was never before observed. The observations are typical, with biting of the tongue and tonic and clonic convulsions, foaming at the mouth, stertor and semicoma. Injected under the form of oily solution into the peritoneum or the cerebrospinal cavity, camphor bromide shows only feeble toxicity; but given intravenously or in alcoholic solutions it may easily elicit convulsions. Muskens made similar experiments on cats and found that a dose of 0.5 Gm. increases the animal's tactile and acoustic irritability. With a higher or repeated dose it is possible to obtain a complete epileptic crisis or a fatal issue. It is likely that some persons are intolerant to camphor bromide, and therefore it is advisable to test the susceptibility of the patient with weak and fractionated doses before administering therapeutic doses.

Arch. Ital. d. Mal. d. App. Diger., Bologna

5: 507-604 (Dec.) 1936

- Connection Between Liver and Transverse Mesocolon by Fibrous Adhesions: Case. E. Levi.—p. 507.
 *Buffer Value of Gastric Juice of Man. P. Zorzi.—p. 520.
 Contractility of Gallbladder: Experiments. G. Guidi.—p. 553.
 Influence of Histamine and Acetylcholine on Gastric Secretion in Normal and Pathologic Conditions of Stomach Studied by Merklen, Kabaker and Warter's Combined Method. P. Rivas.—p. 573.
 Fecaloma of Large Intestine: Case. G. De Luca.—p. 587.
 Pyloric Stenosis from Ingestion of Hydrochloric Acid: Case. R. Gatta.—p. 593.

Buffer Value of Gastric Juice.—According to Zorzi, the knowledge of the buffer value of the gastric juice is of value in studying gastric acidity, of which it is a regulating factor. The buffer factor has been known as "differential acidity" or "combined gastric acid." All gastric juices, spontaneously secreted or induced by administration of a test meal, contain buffer substances, the proportion of which depends on the amount of proteins contained in the gastric juice or in the administered test meal. The buffer value can be determined by titrating the total acidity of the gastric juice by phenolphthalein. It equals total acidity less free acidity in acid gastric juices (those with a p_n lower than 3). It equals total acidity plus acid shortage in anacid gastric juices (those with a p_n higher than 3). The author made determinations of the buffer substances of the gastric juice in 400 patients suffering from gastric disorders (cancer excluded). The buffer value is the lowest in the gastric juices removed from a fasting stomach as well as after a test meal without proteins (15 or 20 degrees of acidity). It is the highest in those which are removed after administration of Ewald's meal (70 or 80 degrees of acidity). A clinical relation between the buffer value and the gastric disturbance in a given case cannot be found. The variations of the buffer value in the gastric juice depend on

the laws of titration, the secreting activity of the stomach and the pyloric evacuation. The buffer value is given by an endogenous factor, which does not change, and an exogenous (alimentary) factor, which changes. The buffer value is an index for the functions of evacuation of the stomach of more precision than the roentgen examination of the organ. Because of its relations with the p_n of the gastric juice, it is of value in indicating the physiopathologic significance of the gastric p_n in its relation to gastric acidity.

Policlinico, Rome

44: 173-220 (April 15) 1937. Surgical Section

Pedunculated Sarcoma of Stomach with Exogastric Development: Case. R. Basso.—p. 173.

*Frequency and Importance of Certain Humoral Variations After Operations. U. Bracci.—p. 181.

Multiple Visceral Lesions from Contusion of Abdomen: Clinical and Statistical Study. C. Mastrosimone.—p. 210.

Postoperative Humoral Variations.—Bracci reviews the various theories on the cause and pathogenesis of postoperative humoral variations, with especial reference to the rôle of chloremia in producing hyperazotemia. From observation of a large number of patients the author concludes that postoperative azotemia appears in about 80 per cent of the cases. As a rule it is slight, and in only a few cases is there hyperazotemia. The frequency of azotemia is related to the seriousness of the operation, and the quality (predominance of urea of pre-urea substances) depends on the organ on which the operation was done. Postoperative toxic conditions are rare. They depend on the entrance of toxic products and incomplete disintegration of proteins in the blood. Several biochemical and other factors are involved in the development of postoperative hyperazotemia. Anesthesia also plays a part, but the rôle of chloremia in producing hyperazotemia is secondary. Up to the present the appearance of humoral changes after operations cannot be predicted or prevented. Further work on the subject is advisable in order to prevent and control humoral postoperative complications.

Revista Brasileira de Leprologia, São Paulo

5: 1-132 (March) 1937

Structural Types of Tuberculoid Leprosy. Rabello Jr.—p. 1.

*Circumscribed Atrophy of Muscles of Thenar Eminence as Initial and Residual Symptom of Nervous Leprosy. N. de Souza Campos and P. W. Longo.—p. 29.

Gynecomasty in Leprosy. L. Baptista.—p. 53.

Chaulmoogra Oil in Large Doses in Leprosy. H. de Moura Costa.—p. 67.

Perforating Disease of Foot in Lepers: Treatment by Insulin and Acetylcholine. H. Guida.—p. 87.

Atrophy of Muscles of Thenar Eminence in Nervous Leprosy.—DeSouza Campos and Longo emphasize the importance of electrical examination of the muscles in the early diagnosis of nervous leprosy. According to the authors, all cases of muscular atrophy have to be subjected to electrical examination, which is the best topographical method for the diagnosis of nervous leprosy as well as for determining the evolution of the disease. They report five cases of atrophy circumscribed to the muscles of the thenar eminence as a symptom, early or late, of leprosy of the ulnar nerve. From their clinical study as well as from a review of the knowledge on the anatomy of the hand, the authors conclude that in their cases only the terminal motor branches of the ulnar nerve and the interosseous posterior nerve were involved in the leprosy degenerative process.

Jahrbuch für Kinderheilkunde, Berlin

149: 1-80 (April) 1937

Lobar Pneumonia in Children. G. Joppich.—p. 1.

Stomatitis and Infectious Diseases. H. Zischinsky.—p. 40.

*Defense Powers Against Infections in Young Nurslings and Critical Evaluation of Therapy of Erysipelas. G. Cosack.—p. 53.

Acute Insufficiency of Adrenal Cortex After Scarlet Fever. J. W. Camerer.—p. 66.

Defense Powers of Nurslings Against Infections.—Cosack points out that the unique position of the defense powers of young nurslings is reflected in the therapy. It is observed again and again that the young organism reacts differently from the adult organism to therapeutic measures, which aim to increase or support the defense powers. As an example the author chooses the therapy of erysipelas, the most acute disease

of young nurslings. He shows how various therapeutic measures exert a different effect in nurslings and in adults. Whereas, for instance, serotherapy and irritation therapy fail in the youngest nurslings, blood transfusion seems to be especially suited for the organism of nurslings. By means of a preparation for irritation therapy, it was demonstrated that the nonspecific defense power is weak in young nurslings. It was possible to differentiate three developmental phases of internal maturation. In the new-born phase, the humoral as well as the cellular defense mechanisms have only a slight reactivity. This phase has been termed that of physiologic areactivity. The second phase comprises the age of young nurslings and it is chiefly characterized by strong leukocytic reactions. During the third phase, which includes the older nurslings and young children, the humoral defense mechanisms reach their full development while the cellular ones decrease constantly. In adults the latter disappear completely and leave the field entirely to the purely humoral reactions.

Zeitschrift für Kinderheilkunde, Berlin

58: 581-684 (March 20) 1937. Partial Index

Limits of Normality in Urology During Childhood. A. Oberniedermayr.—p. 581.

*Further Investigations on Active Immunotherapy of Whooping Cough. W. Keller.—p. 591.

Biologic Value of Some Milk-Free Eczema Diets. J. Brock and H. Röntsch.—p. 612.

*Treatment of Pneumonia in Children with Fresh Air Stimuli (Air Changes). J. Jochims.—p. 620.

Clinical Aspects of Arachnodactylia and Indications of Its Hereditary Character. H. Fischbach.—p. 630.

Allergometric Studies on Tuberculin Allergic Children. A. von Chwalibogowski.—p. 659.

Immunotherapy of Whooping Cough.—Keller recorded in curves the coughing attacks and the antibody content of sixty-three children with whooping cough, forty-three of whom had been treated with a whooping cough vaccine and twenty of whom had not been vaccinated. The antibody content was determined by means of the complement fixation reaction. In the children who had not been vaccinated, the comparison of the two curves revealed that neither the antibodies in the blood nor those in the tissues are the cause of the hygienic processes and consequently of the cure. But although the antibodies as such are of no importance for the essential process of hygienogenesis, the peak in the antibody curve indicates the onset of the curative process. In the children who had been vaccinated, the following observations were made: 1. The specific antibodies that are produced by vaccination and demonstrable by the complement fixation test are identical with those that are formed during the spontaneous infection. 2. The formation of antibodies, which is elicited by the vaccination of whooping cough patients, is so rapid that the appearance of the antibodies in the blood in many cases has not the same significance as in the children who have not been treated with the vaccine. 3. In view of the observations on those who had not been given vaccine, the vaccination can be pronounced as efficacious only if the peak of the antibody curve and the subsidence of the attacks of coughing concur. This apparently takes place if the vaccine is administered after the cough has already appeared, for in spite of the relatively late vaccination the peak of the antibody curve is reached earlier than in those who have not been vaccinated and the spontaneous hygienic processes are accelerated. 4. If the vaccine is administered after the antibody titer has reached spontaneously a high level, a considerable although temporary reduction in the titer usually takes place immediately. 5. In case of complications with other disorders, such as pneumonia or bronchitis, and in young nurslings, the treatment with vaccine fails. 6. Prophylactic vaccination, even if it produces a high antibody titer and is performed long enough before the infection, proves inadequate to prevent whooping cough. 7. Although the therapeutic use of whooping cough vaccine is limited, its complete rejection is not justified.

Treatment of Children with Pneumonia.—According to Jochims, the fresh air treatment of young children with bronchopneumonia has gained favor in recent years. There are cases in which prolonged exposure to fresh air causes renewed impairment of the circulation or even collapse and also disturbances in the general condition. The author reasoned that

this might be avoided if, after several hours' exposure to the cold fresh air, the child was brought again into a warm room and then again into the cold fresh air. This led him to the development of the treatment by air stimuli, that is, by changes between cool fresh air and warm room temperature, the change being made at intervals of six hours. This treatment was employed in twenty-six children. It is important that the change from one temperature to the other is made quickly, for the cold air must exert a stimulus on the skin; it should produce a noticeable reduction of the cutaneous temperature. On the whole, the important factor is not so much the absolute temperatures, but rather the extent of the difference. After the children are brought from the lower temperature into the warm room, the cheeks show a better blood perfusion, which lasts several hours and is indicated by the reddish color of the skin as well as by the cutaneous temperature. The temperature of the cheeks increases as much as 4.8 degrees C. above the initial value. The treatment with air stimuli or air changes is used with good results in children with bronchopneumonia. However, it is contraindicated in premature births and in nurslings with a still inadequate temperature control. Children who are in collapse or those in whom collapse threatens are likewise unsuited for exposure to cold air. In children with latent spasmophilia, the air stimuli should be employed only with extreme caution.

Wiener medizinische Wochenschrift, Vienna

87: 457-480 (April 24) 1937

- *Pathology of Hypophysial Disorders. W. Falta.—p. 457.
Does Present-Day Scientism and Etatism Involve Dangers for Surgery?
A. Jirásek.—p. 458.
Diabetes in Children. R. Wagner.—p. 461.
Illegitimately Begotten, Legitimately Born Children. R. Hofstätter.—
p. 464.

Pathology of Hypophysial Disorders.—Falta criticizes Erdheim's opinion regarding partial hyperpituitarism. He does not deny that acromegaly is the result of a hyperfunction of the eosinophilic cells, but he questions whether the growing eosinophilic tumor by its pressure on the other types of cells of the adenohypophysis complicates the partial hyperpituitarism by hypopituitarism and whether this explains the later development of cachexia and genital impairment. He points out that this assumption is contradicted by the fact that in the initial stage of many cases of acromegaly there exists an increase in the genital function and that this function frequently is retained to the late stages of the disease. Moreover, if acromegaly is accompanied by a disturbance in the genital function, this disorder is of a different nature than is the case in hypophysial cachexia, which represents the opposite of acromegaly and is probably caused chiefly by the abolishment of the function of the eosinophilic cells. The cachexia that develops in the later stages of typical acromegaly differs from the cachexia that develops in case of destruction of the anterior lobe of a hypophysis. Then there is a combination of acromegaly with eunuchoidism; but even in this case the eunuchoidism is not produced, as assumed by Erdheim, by a pressure of the growing eosinophilic tumor on the other types of cells of the adenohypophysis but is rather an independent entity. The author is convinced that eunuchoidism as such has no connection with the hypophysis but is the result of a defective primordium of the trophic center of the gonads in the hypothalamic region. Further he takes up Cushing's syndrome, calling attention to the fact that the pathologic anatomy does not provide an adequate explanation, for there are cases with basophil adenomas in which Cushing's syndrome does not develop. On the other hand, a case has been described in which there was not only an increase in basophilic cells of the anterior pituitary, but basophilic cells were found disseminated from there into the hypothalamic region and were detected also in the adrenal cortex and in the kidneys. In discussing the various functions of the hypophysial hormones the author stresses that the action on the metabolism should not be overlooked. In the conclusion he expresses the opinion that it is not necessary to differentiate between anterior hypophysial substances that have been extracted from pregnancy urine and the extracts of the anterior lobe of the hypophysis. He found that with a substance extracted from pregnancy urine it was possible to produce nearly all the effects which can be produced with the various extracts

obtained by different methods from the anterior lobe of the hypophysis, such as the action on the basal metabolism, the anti-insular action, the gonadotropic action and the growth promoting action. He suggests that the numerous substances obtained from the anterior pituitary by various methods of extraction might be derived from one basic substance.

Hospitalstidende, Copenhagen

80: 281-312 (March 16) 1937

- Birth Rate, Growth, Morbidity and Mortality Seen in Relation to Yearly Seasons. C. Schjtz.—p. 281.
*Bilateral Extra-Uterine Pregnancy. A. Jessing.—p. 306.

Bilateral Extra-Uterine Pregnancy.—Jessing reports the case of a woman, aged 42, with two extra-uterine pregnancies at an interval of two years. He says that larger statistics show a recurrence of extra-uterine pregnancy in about 10 per cent, while the frequency of normal gravidity after operation for extra-uterine pregnancy is about 50 per cent. Removal of the nongravid tube in operative treatment of extra-uterine pregnancy therefore does not seem to him justifiable unless the nongravid tube is the seat of grave anatomopathologic changes.

80: 313-356 (March 23) 1937

- *Deep Otogenic Inflammation of Temporal Bone: Petrositis. R. Lund.—p. 313.
Pseudoparasites. V. Jensen.—p. 348.
Morgagni's Syndrome (Hyperostosis Frontalis Interna, Virilitas, Obesitas). P. Levison.—p. 352.

Deep Otogenic Inflammation of Temporal Bone.—Lund discusses simple petrositis and osteitis of the petrous portion of the temporal bone on the basis of fifty-four cases comprising thirty-eight cases of acute or subacute suppuration of the middle ear, thirteen of simple chronic and three of cholesteatomatous suppuration. In the fifty-four cases eighty-nine foci were emptied, fifteen anterior and seventy-four posterior, the greater number of interventions on the posterior foci being partly due to their easier accessibility. The main symptom in deep osteitis is pain, differing in character and location from the usual ear pain. It is generally neuralgic, most often violent. The most common localization is one or more of the fields of the trigeminal branches. In thirteen cases in children under the age of 10 years, there was no definite statement as to pain. In part of the second group of twenty-four adults there was pain, sometimes violent, but indefinite. In the third group of nineteen patients, typical petrositis pain was established; fourteen of these had acute suppuration of the middle ear, the typical pain appearing in eleven during the first days of the suppuration and in three on the seventeenth, the thirteenth and the forty-first day, respectively. These pains cease spontaneously or after the operation on the ear, permanently in many cases; in others they recur. When the field of all three trigeminal branches is affected, the presence of a disturbance of the gasserian ganglion is likely; it is certain if disturbances in sensitivity are established also in the trigeminal fields. The neuralgic pain in the orbits, emphasized in the literature, occurred in only four cases, in two of which the apex was affected. In three cases there was no orbital pain in spite of total petrositis. In emptying focus VI, especially when the osteitis continues into focus III, which is frequent, the facial nerve is sometimes laid bare above the styloid foramen, usually, without lesion of the nerve, causing a postoperative paralysis of the facial nerve as seen in six cases. The prognosis is favorable. In nineteen cases there was pronounced disorder of the labyrinth, with complete destruction of the labyrinth in seven and fistulous breaking through to the labyrinth in two. In case of labyrinthine disturbance during the course of suppuration of the ear, every effort should be made to determine whether or not petrositis is present. If apicitis is not diagnosed before paralysis of the abducent nerve is manifest, the case will often be one of marked meningitis. Petrositis in the early course of suppuration of the middle ear, without actual osteitis, has a tendency to spontaneous recovery. Even at a later stage, when there is true osteitis in the temporal bone, i. e., from the third to the sixth week, when operation on the mastoid process is indicated, the prognosis is good without deep intervention. In the subacute stages of the osteitis the disorder is so variable in localization and extent that the prognosis is uncertain. In the first stage of acute petrositis, paracentesis often results in recovery.

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THE XANTHINES (THEOBROMINE AND AMINOPHYLLINE) IN THE TREAT- MENT OF CARDIAC PAIN

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An endeavor was made in this study to secure evidence on the question of whether the xanthines relieve cardiac pain.

SELECTION OF PATIENTS

The subjects were 100 ambulant patients in attendance at the cardiac clinic, in whom the diagnosis of arteriosclerotic heart disease with cardiac pain was made, in accordance with the nomenclature and criteria adopted by the New York Heart Association.¹

They were selected from a total case load of approximately 700 patients, representing an average sample of the cardiac clinic population, comprising several racial groups, both native and foreign born. The study was conducted during a period of five years. The duration of the study in any given case varied from two to fifty months, the average being fifteen months.

Some of the characteristics of the whole group are listed in table 1.

None of these patients had signs of congestive heart failure. Only patients with pain on effort were studied, although it was realized that some cases of true cardiac pain were excluded by this restriction. However, this measure served further to insure against the inclusion of patients in whom the thoracic pain might be of non-cardiac origin.

The severity of the pain varied greatly, from mild substernal pressure or discomfort induced by moderate effort, only slightly interfering with the patient's ability to carry on (1+), to excruciating pain induced by the slightest effort, occurring also when the patient was at rest, so as to cause almost complete incapacity (3+).

Careful questioning of the patient at every visit to the clinic made it possible to exclude those cases in which there was reason to believe that cooperation in the uninterrupted use of whatever drug was issued and in the accurate reporting of any omissions was not sufficiently faithful for the purpose of this study.

If the xanthine should produce a moderate improvement in the efficiency of the coronary circulation, the

effect of this might conceivably escape detection in individuals engaged in very heavy work. From this point of view our subjects were particularly favorable for this study, since most of them, as shown in the table, were not engaged in any occupation.

GLYCERYL TRINITRATE TEST

Early in the course of the study it was believed desirable to restrict the selection of patients to those who could establish their qualifications for service in such a study as this by their ability to distinguish between the efficacy of glyceryl trinitrate taken under the tongue and a soluble placebo tablet taken in the same manner for relief during attacks of pain. The discovery of several patients who found the two equally effective among those who had suffered an attack of coronary thrombosis and were subject to thoracic pain on effort led us to abandon this restriction.

The results obtained in sixty patients in whom the glyceryl trinitrate test was made are of some interest. These patients received glyceryl trinitrate tablets, $\frac{1}{100}$ or $\frac{1}{150}$ grain (0.6 or 0.4 mg.), which they were directed to take under the tongue at the onset of an attack of pain. In many of these cases, periods of glyceryl trinitrate testing were alternated with periods in which a soluble placebo was dispensed. The duration of these periods was from one-week to several weeks in each case. The results are presented in table 2. Of the sixty patients, forty-nine (82 per cent) reported relief by the use of glyceryl trinitrate during attacks. Of eighteen cases in which the soluble placebo was also used, fourteen (78 per cent) reported relief of symptoms. This is not a strictly valid comparison of the relative effectiveness of the placebo and glyceryl trinitrate because of the small number of cases in which the placebo was used. Nevertheless these results give some idea of how often a placebo taken under the tongue may be judged by the average clinic patient to afford relief during attacks of cardiac pain.

The qualification of the patient to testify regarding the efficacy of a vasodilator drug is, no doubt, best established in those cases in which the attack of pain is such as to enable the patient always to distinguish between the glyceryl trinitrate and the placebo. However, the fact that the patient believed that he obtained partial or even complete relief with the placebo during brief attacks of pain does not necessarily disqualify his testimony in a study of theobromine. A patient who is subject to brief attacks of cardiac pain on effort which necessitate immediate interruption of the physical activities and which, in turn, leads to rapid cessation of pain, may easily be in error in judgment regarding the efficiency of a drug used to terminate the attack. Such a patient, however, need not necessarily have difficulty in distinguishing a potent from an inert agent when the

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Faithful cooperation was rendered throughout the course of this study by Miss Kathleen Scott (social worker, Hospital for Joint Diseases) and Miss Margaret Slevin (social worker, Beth Israel Hospital).

1. Criteria for the Classification and Diagnosis of Heart Disease.

results compared are changes in the frequency of attacks and in the capacity for effort without distress. These individuals, therefore, are entirely suitable for the study of the effects of a drug like theobromine, which is presumed to act over a protracted period.

DRUGS AND OTHER TREATMENT

Most of these patients had been in attendance at the clinic for a long time when the study was started, and many of them were already subject to restrictions in

TABLE 1.—Classification of One Hundred Patients with Arteriosclerotic Heart Disease and Cardiac Pain

Average age	57.6 years
Age range	40-82 years
Number of males	85
Number of females	15
Number with hypertension (25 males, 9 females)	34
Number with electrocardiographic changes indicating myocardial damage	51
Number with coronary thrombosis (30 males, 3 females) ..	33
Classification of pain based on severity, duration and frequency of attacks, and degree of physical limitation:	
Slight (1+)	9
Moderate (2+)	45
Severe (3+)	46
Occupation:	
Number not working	75
Number working (15 women doing limited housework; 7 men engaged in light part-time work; 3 men engaged in light full-time work)	25
Range of periods of study	2-50 mos.
Average period of study	15 mos.

diet and effort. No advice was given for modification of habits or activities during the course of this study.

The choice of a xanthine presented a problem. The results of animal experiments dealing with their effect on the coronary circulation are conflicting. Smith, Miller and Graber² found theophylline preparations more effective than other xanthines. In contrast, Gilbert and Fenn³ and Heathcote⁴ found theobromine preparations more effective than those of theophylline. There is also considerable divergence of opinion in the clinical literature on the relative merits of different members of the xanthine group. It has been stated⁵ that therapeutic effects may be produced by one member when another has failed. Each has its adherents (diuretin,⁶ theophylline,⁷ theobromine⁸). The one that appears to be most popular at the present time is theophylline with ethylenediamine, although some⁵ maintain that theobromine or its preparations are equally effective and sometimes more effective.

The drugs were dispensed in the clinic. In this study theobromine in the form of a 5 grain (0.3 Gm.) tablet was used in all the cases, and in twelve of them tests with aminophylline (theophylline with ethylenediamine), given in 1½ grain (0.1 Gm.) tablets, were also carried through. The total daily dose of theobromine varied from 15 to 60 grains (1 to 4 Gm.), given in single doses of from 5 to 15 grains (0.3 to 1 Gm.) at intervals of about six hours. The highest daily dosage of theobromine was from 15 to 25 grains (1 to 1.6 Gm.) in

26 per cent of the cases, 30 grains (2 Gm.) in 53 per cent, and between 40 and 60 grains (2.6 to 4 Gm.) in 21 per cent. The highest total doses of aminophylline were 9 and 12 grains (0.6 and 0.8 Gm.) daily in all cases except one, in which the highest dose was 6 grains (0.4 Gm.). These were given in single doses of 3 grains (0.2 Gm.) three or four times a day. These doses correspond to the high doses given by others and exceed the doses used in the majority of reports in the literature.

The xanthines were given in courses lasting from one to twenty-five weeks, the average lasting three and one-half weeks. Some patients received as many as seven courses; the average was two courses for each patient. Several courses of treatment with the xanthine and the placebo were carried through, especially in those cases in which obvious factors that might vitiate a valid comparison existed, such as a change of weather or of work. In all, 209 courses of treatment with the xanthines were given. Each course was alternated with a period in which the patient received various agents such as sodium salicylate, acetylsalicylic acid, calomel, quinidine, cascara, mixture of rhubarb and soda (N. F.), digitalis, phenobarbital or codeine. In each case a comparison was also made of the efficacy of the xanthines with that of lactose.

The physical characteristics of the oral placebo that we used as a routine, a tablet of lactose, were not identical with those of the xanthine. It was not considered necessary to have them identical for those patients who reported no improvement while taking a xanthine. However, it was essential to take the factors of size, shape and taste into account in the subsequent testing in cases in which improvement occurred during the use of the xanthine but which failed to continue when the medication was changed. The validity of the control was materially enhanced by the fact that the duration of the courses with the placebo and the xanthines was fairly long and that courses of each were

TABLE 2.—Efficacy of Glyceryl Trinitrate and Placebo in Providing Relief During Cardiac Pain

Number of Patients	Glyceryl Trinitrate	Placebo
34.....	+	0
2.....	+	—
8.....	—	0
9.....	+	+
4.....	+ or —	+ or —
2.....	—	—
1.....	—	+
Total.....	60	18

(+) Attacks always relieved; (—) not relieved; (0) not tested; (+ or —) sometimes relieved and sometimes not.

repeated frequently, at different seasons of the year, and under other conditions as nearly comparable as possible.

METHOD OF SECURING DATA

The method of securing data proved to be by far the most laborious aspect of the whole work. The validity of the results in this study depends chiefly on the nature of the questions that the patient was asked and the accuracy of the answers. No effort was spared in the endeavor to secure the patient's most accurate judgments, since these judgments regarding changes in the severity of a subjective symptom formed the factual data on which the analyses are based. It was fully realized that the study could be no better than this part of the work.

2. Smith, F. M.; Miller, G. H., and Graber, V. C.: The Effect of Caffeine Sodio-Benzozate, Theobromine Sodio-Salicylate, Theophylline and Euphylline on the Coronary Flow and Cardiac Action of the Rabbit, *J. Clin. Investigation* 2: 157 (Dec.) 1923.

3. Gilbert, N. C., and Fenn, G. K.: The Effect of the Purine-Base Diuretics on the Coronary Flow, *Arch. Int. Med.* 44: 113 (July) 1929.

4. Heathcote, R. St. A.: The Action of Caffeine, Theobromine and Theophylline on the Mammalian and Batrachian Heart, *J. Pharmacol. & Exper. Therap.* 16: 327 (Dec.) 1920.

5. Gilbert, N. C., and Kerr, J. A.: Clinical Results in Treatment of Angina Pectoris with the Purine-Base Diuretics, *J. A. M. A.* 92: 201 (Jan. 19) 1929.

6. Breuer, R.: Zur Therapie und Pathogenese der Stenokardie und verwandte Zustände, München, med. Wehnschr., 49: 1604, 1902.

7. Smith, F. M.; Rathe, H. W., and Paul, W. D.: Theophylline in the Treatment of Disease of the Coronary Arteries, *Arch. Int. Med.* 56: 1250 (Dec.) 1935.

8. Willius, F. A.: Newer Methods in the Treatment of Diseases of the Heart, *Collected Papers of the Mayo Clinic* 18: 670, 1926.

It is not feasible to describe in detail the technic of the questioning; it varied from patient to patient. It should be stated, however, that the hurried interrogation of the average clinic routine history proved entirely inadequate for our purpose.

Some general principles that we endeavored to take into account may be mentioned:

The study was started during a period which the patient regarded as representing pain of average severity or the habitual status. The condition on the previous visit served usually as the point of reference in plotting the subsequent course. However, when the visits were more infrequent and the patients seemed uncertain of this point of reference, they were directed to relate the severity of the symptoms to their habitual status. Patients were also directed to consider in their judgment the frequency, the severity and the duration of the pain, and any change that they might have been able to detect in their ability to carry on their usual affairs without pain. The record of each visit included the patient's estimate of the entire period since the last visit and not merely one or two days during the period or the last day of the period.

It was found that, in the initial reply regarding changes in pain, patients often failed to take into account all the necessary factors on which the judgment was to be based, and, not infrequently, more thorough questioning resulted in their revision of their first appraisal. Therein was appreciated an important source of error of another kind; namely, the leading question. Various devices were employed to guard against directing the patient's judgment. Usually they were frankly informed that the examiner was uncertain as to whether the medicine would prove helpful or not, and the idea was conveyed to them that, in any case, subsequent planning for their treatment depended on the accuracy of their statements regarding their condition during the period that had elapsed. In a further attempt to eliminate the possibility of bias, the questioner usually refrained from informing himself as to the agent that had been issued until after the patient's appraisal of the period had been obtained.

The intensity of the pain was graded and charted. Three grades in each direction were considered: increase of pain, slight, moderate or marked; decrease of pain, slight, moderate or marked.

CAUSE AND EFFECT

The plan of the study included a consideration of the manner in which cause and effect were to be established.

Interesting data on this point are provided by the patients themselves. Their statements often represent not only matters of fact but their reflections on causes and effects. Patients were encouraged to disclose their own belief regarding the influence of the drug. Some expressed strong impressions that the agents exerted no beneficial effects, and the lack of disposition on the part of many patients to continue to keep their clinic appointments and to take the medicine regularly may usually be considered as an expression of opinion having a similar significance. Some expressed a definite conviction at times that it was the drug which was responsible for the relief. That that drug was often the lactose placebo, and that some patients insisted on its efficacy, protesting against any suggested change, justifies all the circumspection one can exercise in accepting a patient's judgments in a study of this sort. In some cases this type of questioning served to direct attention to extraneous factors which the patient clearly

perceived as a possible cause of the improvement, such, for example, as a change in the weather or in the amount of work.

The data obtained in this way proved to be entirely unreliable as a basis for establishing the efficacy of theobromine. Several possible causes for change in symptoms, some additive, some antagonistic, practically always coexisted. It seemed futile to attempt to unravel and evaluate the various factors, many of which are unknown, that might be responsible for the relief of pain.

The method we employed for determining cause and effect was more objective and relatively free of personal judgments. The procedure was based on this general formulation; namely, if the relief of pain during the

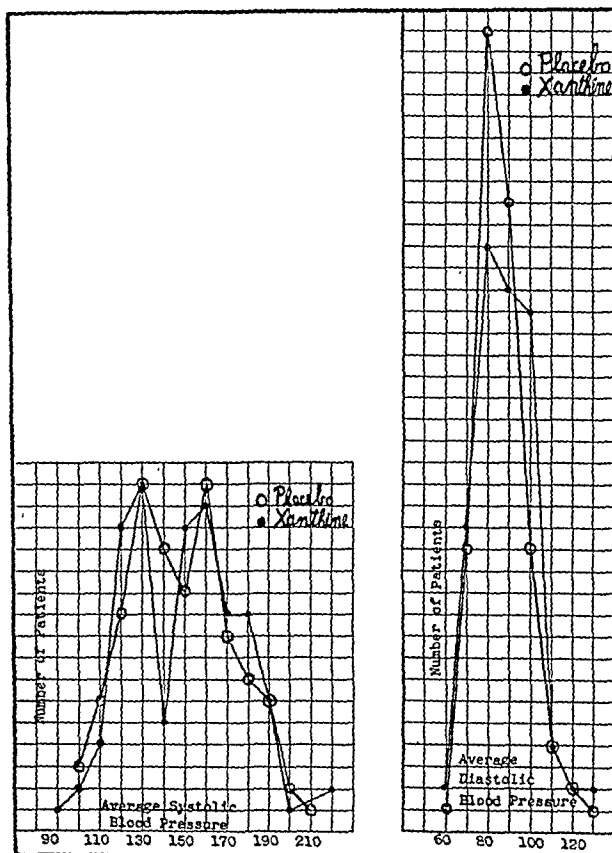


Chart 1.—Frequency distribution of average systolic and diastolic blood pressures in the 100 cases during the use of a placebo compared with that during treatment with a xanthine.

use of the xanthine is due to the specific action of the drug, the patient should be able to distinguish its effects, and to do so repeatedly, from the effects of a placebo given under similar conditions and in such form as to preclude its detection by the patient through any means other than the relief of pain.

RESULTS

Blood Pressure.—Records of the blood pressure were taken with the mercury manometer at almost every visit throughout the study. Very marked variations, as high as 70 mm. systolic and 30 mm. diastolic, were found in some individuals at different times. The highest and lowest systolic pressures for any individual in a given period were averaged similarly for the diastolic pressures. The averages for the systolic and diastolic pressures in the placebo and xanthine periods are com-

pared in a frequency distribution curve (chart 1). This discloses no significant effect of the xanthine on the blood pressure.

Electrocardiograms were not taken systematically as part of this study. There were several electrocardiograms for each patient, but in only nine cases was a tracing taken during the use of the xanthine. In these, the form of the deflections, their voltage and the time intervals are indistinguishable from those in the patients' control tracing.

Toxic Effects.—Fourteen patients at some time during the study complained of one or more of the following symptoms: dizziness, light-headedness, headache, weakness, nausea, vomiting (in one case) and heartburn. It is not possible to be certain in how many of these cases the symptoms were due to the xanthine. In five cases the symptoms disappeared even though the theobromine was continued in the same or in higher daily doses (from 30 to 60 grains). In three the symp-

The full significance of these observations is not appreciated until one examines the complete record of the various cases. It is not feasible to present a detailed account of all the cases, but several typical cases that have been selected and are shown in charts 2 to 5 will suffice to demonstrate the results, as well as the manner in which the study was pursued to determine whether a patient can identify a xanthine by its influence on cardiac pain from among other agents either inert or known to be of little or no value in this condition.

The records of the hundred cases studied in this way fall into four types:

(a) Those in which the habitual status remained constant and apparently uninfluenced by any drug that was used (8 per cent) (1, chart 2).

(b) Those in which a change of status was always for the worse (12 per cent) (2, chart 2).

(c) Those in which the change of status was always in the direction of improvement (34 per cent) (3, 4 and 5, chart 2; 8, 9 and 11, chart 3; 12, chart 4).

(d) Those in which the condition fluctuated markedly in both directions (45 per cent) (6, 7 and 10, chart 3; 13 to 17, chart 4; 18 and 19, chart 5).

A careful perusal of these records will show that the change in the amount of pain occurring during the use of a xanthine is reproduced by a course of a placebo in every case. It is important to note, however, that there is no dearth of isolated instances which, without further testing, might have led to the impression that the xanthine, by a specific action, had caused improvement.

Some authors⁹ have interpreted the phenomenon as tolerance when a patient ceased to show improvement from a xanthine, and as the absence of cross-tolerance when, by a change to another preparation of a xanthine, the improvement was reestablished. Both of these phenomena are reproduced in our records during the use of a placebo and are therefore probably fortuitous, representing neither tolerance nor absence of cross-tolerance.

TABLE 3.—Changes in Pain During First Course of Treatment

Number of Patients	Theobromine	Placebo
Pain unchanged.....	63	69
Pain diminished.....	22	25
Pain increased.....	15	6
Duration of course.....	1.6 weeks (1-4 weeks)	2.6 weeks (1-8 weeks)

There was one patient (19) who gave strong indication that he was capable, by the relief of pain, of differentiating the xanthine in a variety of forms (tablets and solutions of various colors and tastes) from among a number of other agents. This experiment yielded results that were almost conclusive, but the patient also appeared able to distinguish clearly the taste of the theobromine from that of other agents, even when masked. Before the experiment was carried through to exclude that factor the patient died, and with that there vanished the possibility of conclusive proof in what might have been our only positive case.

COMMENT

Askanazy⁹ appears to have been the first to direct attention to the use of the xanthines in angina pectoris. In the period of about forty years that has elapsed, their use for this purpose has gained momentum and at the present time it is probable that few sufferers with

9. Askanazy, S.: Klinisches über Diuretin, Deutsches Arch. f. Klin. Med. 56: 209, 1895.

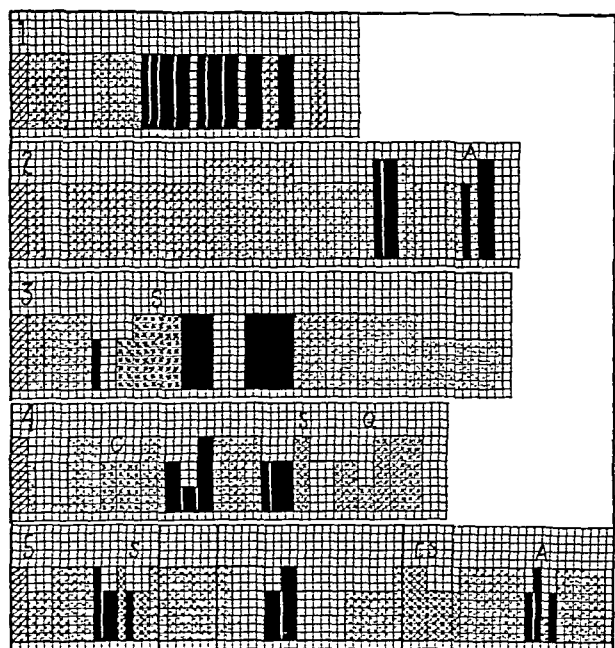


Chart 2.—Course in cases 1 to 5. The first column of each chart is made to represent the habitual status of the patient. It is arbitrary, nine squares high, and a column of the same height may refer to pain of different severity in different patients. The periods between individual clinic visits are marked off by the dark lines, or by white lines between black columns. An increase in pain is indicated by an upward direction of the column and a decrease by a downward direction, as follows: slight (change of column by three squares); moderate (change of column by six squares); marked (change of column by eight squares). The solid black columns always indicate a xanthine; it is theobromine, except when labeled A (aminophylline). The dotted columns always indicate a placebo. The cross-hatched columns always indicate active agents and are labeled as follows: S (sodium salicylate), C (calomel), Q (quinidine sulfate), CS (cascara sagrada), Co (codeine sulfate), B (barbital), P (phenobarbital), R (mixture of rhubarb and soda [N. F.]), D (digitalis). Blank columns indicate periods without medicine.

toms disappeared when the doses were reduced from 40 to 20 grains daily. One patient complained of nausea while taking a daily dose of 9 grains of aminophylline.

Effect on Pain.—The effect on cardiac pain of the first course of treatment with the xanthine was compared with that of the first course of a placebo, and the results are given in table 3. As may be seen, most of the patients reported no change, a small number reported that the pain was worse and about one fourth of the patients in each group reported improvement. Of those who reported improvement, eight belonged to both groups.

cardiac pain escape a course of treatment with a xanthine at one time or another.

Numerous reports have been published on the use of these agents for the relief of cardiac pain.¹⁰ These reports do not all show the same degree of optimism. Breuer⁶ declared the introduction of theobromine for the treatment of cardiac asthma and angina pectoris "to be the most praiseworthy therapeutic achievement

When a patient declares that pain has diminished during the use of the xanthine the cause might be the specific action of the drug, but it might also be any one of a number of other factors, such as:

1. Spontaneous variations in the course of the pain.
2. Change in the weather.
3. Change of occupation or amount of work.
4. Change of diet.
5. Change in eating habits with increase in the amount of rest before and after meals.
6. Condition of the bowels.
7. Emotional stress.
8. Change in domestic affairs.
9. Confidence aroused in the treatment.
10. Encouragement afforded by any new procedure.
11. A change of the medical adviser.

Authors have clearly appreciated the numerous sources of error, but they have failed to take many of them sufficiently into account or have minimized their importance in the final evaluation. An interesting example of this is the important study by Gilbert and Kerr.⁵ In their report they referred to angina pectoris as "a symptom complex so readily influenced by nervous factors, and in which there are so many unknown variables," and in regard to treatment they stated: "Reassurance alone is a therapeutic aid of no mean value. Some patients tend to improve from a decrease in emotional strain and from other factors unknown." The regimen in their cases consisted in observation in

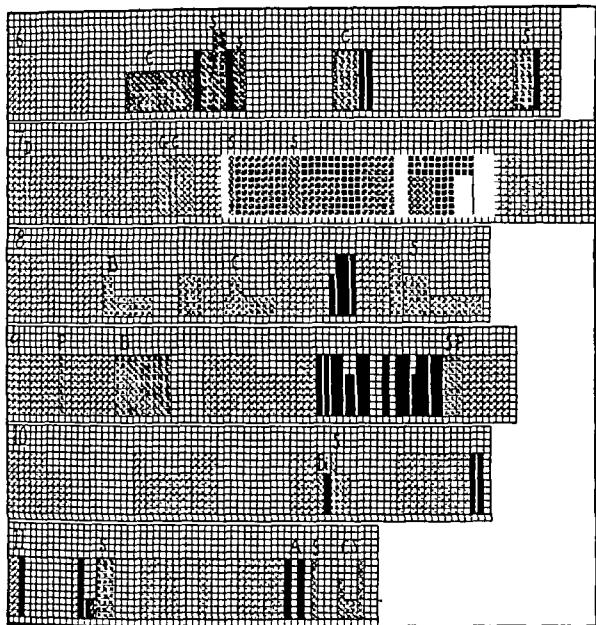


Chart 3.—Course in cases 6 to 11.

of the last decade." Gilbert and Kerr⁵ concurred in this statement "with equal emphasis." They reported relief in 83 per cent of a group of eighty-six patients with angina pectoris. On the other hand, Dock¹⁰ observed that "in most cases of angina pectoris no relief was given, but in an important minority relief was immediate and complete." The experience of different observers regarding the time it takes to secure the full therapeutic effects also shows wide divergence. For example, Dock¹⁰ stated that, if decided benefit is not noted within three or four days, further administration is useless. On the other hand, Smith, Rathe and Paul⁷ observed that, in order to insure the maximum benefit from the drug, its administration should be continued for a long time, and Musser¹⁰ found that pain is relieved and the pressure is distinctly lowered "after theophylline-ethylenediamine has been taken for weeks or months."

With one exception,¹¹ the clinical reports have two characteristics in common: first, they all advocate the use of the xanthines and report beneficial results in numbers up to about 80 per cent of the cases in different series; second, they are reports of clinical experience rather than of controlled investigations and represent observations made under conditions that fail to meet essential standards of scientific evidence.

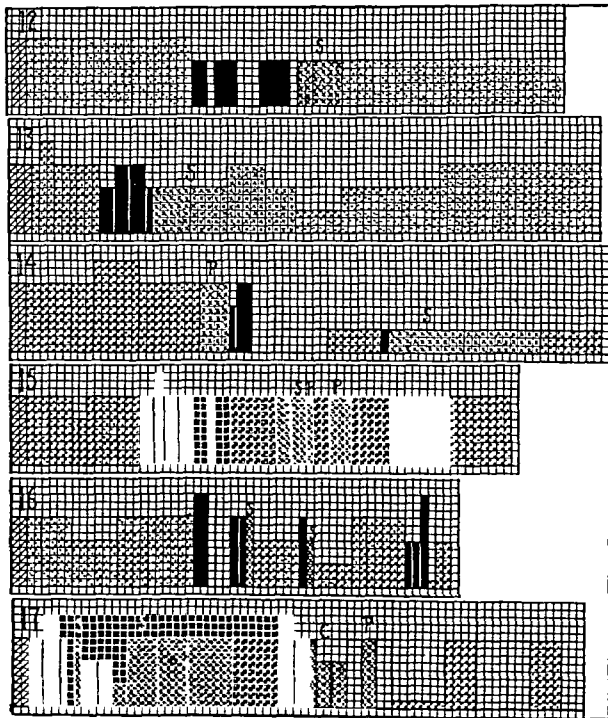


Chart 4.—Course in cases 12 to 17.

the hospital for a few days and the following routine after discharge: regulation of the bowels with liquid petrolatum or three or four glasses of warm water on rising, rest one-half hour before meals and one-half to one hour after meals, withdrawal of "foods which in their experience caused gas," and a dose of a xanthine four times daily. Here, therefore, are five measures, each in itself competent to exert a beneficent influence on cardiac pain, and when in a high proportion of the

10. Dock, William: The Use of Theobromine for Pain of Arterio-sclerotic Origin. *Calif. J. Med.*, 1: 25: 636 (Nov.) 1926. Musser, J. H.: The Heart Disease Associated with Angina Pectoris. *Ann. N. Y. Acad. Sci.*, 1928. Guggenheimer, H.: Zur Herzbehandlung bei Theobromin. *Deutsche med. Wochenschr.*, 49: 1928. Wirkungsweise des Euphyllins bei Angina pectoris und Asthma cardiale. *Ztschr. f. Kreislaufforsch.*, 1928. Gilbert and Kerr.⁵
11. Evans, William and Hoyle, Clifford: The Comparative Value of Drugs Used in the Continuous Treatment of Angina Pectoris. *Quart. J. Med.*, 26: 311 (July) 1933.

eighty-six cases relief was obtained the result was ascribed to the xanthines, without proof that a placebo given under similar conditions would not have accomplished as much.

A word about the experimental basis for the use of the xanthines in the treatment of cardiac pain: Perhaps it is unnecessary to state that the strength of the proof supplied by animal experiments cannot materially enhance the validity of inadequate clinical observations. Clinical reports on the xanthines in cardiac pain lean very heavily on the results of the studies with the isolated heart and in anesthetized animals. These show fairly consistently that the xanthines dilate coronary arteries,¹² and the belief prevails that the soundness of their clinical use is secured in these pharmacologic studies. The indications for the use of the xanthines are, in fact, derived from a combination of current theory as to the mechanism of cardiac pain and the means by which it may be relieved, and dubious inferences from the results of animal experiments; for not one of them is free of objections as a basis for the assumption that the xanthines produce an increase in the capillary or collateral flow through the heart.¹³ The bias created by the undue emphasis placed on the clinical significance of the experimental results is undoubt-

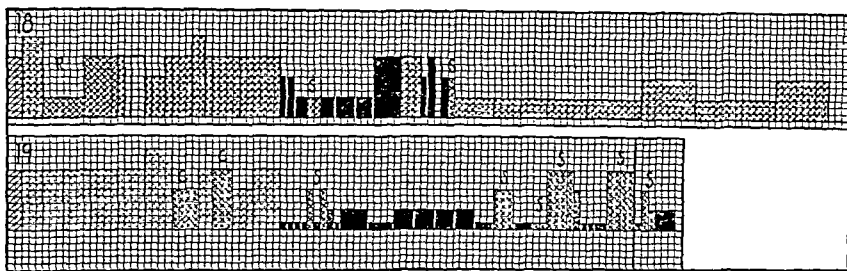


Chart 5.—Course in cases 18 and 19.

edly responsible, at least in part, for the fact that the question whether the xanthines actually relieve cardiac pain in patients with coronary disease has received so little satisfactory independent examination.

Mention has been made of one study in the literature in which exception is taken to the general belief regarding the efficacy of the xanthines in angina pectoris. This is the paper by Evans and Hoyle,¹¹ which appeared while our study was in progress. In that investigation ninety patients were treated with a variety of agents, including xanthines, and their efficacy compared with a placebo. The influence on the pain was determined not only by an estimate of the patient regarding his status but by a written record kept by the patient of the frequency of attacks. As the result of this work they stated that they were unable to convince themselves that the xanthines (as well as the other drugs which they tested) are worthy even of trial in the routine treatment of cardiac pain.

Our study, carried out under substantially similarly controlled conditions, has yielded similar results, and our conclusion is in accord with theirs; namely, that the xanthines exert no specific action that is useful in the routine treatment of cardiac pain.

SUMMARY

1. The effect of theobromine and aminophylline on cardiac pain was studied in a group of 100 ambulant patients with angina pectoris.

2. These patients were selected on the basis of proof of organic heart disease, cardiac pain on effort, little or no physical work, and faithful cooperation.

3. An attempt to include only patients who could distinguish relief afforded by glyceryl trinitrate from relief by a soluble placebo tablet taken in the same way during an attack of pain was abandoned, because a fairly large number of patients with cardiac pain were found who could not distinguish between the two. This is due to the transient character of effort pain in a large proportion of the patients.

4. The effect studied was the influence on the severity and frequency of attacks and on the capacity for effort without pain, not relief during attacks of pain.

5. The data consisted of the patients' judgments regarding changes in pain. These data were secured in a manner relatively free of bias by the use of the "blind test."

6. In all, 209 courses of treatment with the xanthines were given, each course being alternated with a course in which a placebo (or some other agent) was used.

7. The doses of the xanthines were from 15 to 60 grains daily of theobromine, and from 9 to 12 grains daily of aminophylline.

8. Changes in the amount of pain were charted. Cause and effect were established by a method relatively free of personal judgments; namely, by comparing sections of the chart representing periods in which a placebo of lactose (or some other agent) was taken with those in which a xanthine was administered.

9. The xanthines were without appreciable influence on the blood pressure.

10. Every type of change in pain observed during the use of a xanthine was reproduced in the same individual by a period in which a placebo was used.

11. The results show, therefore, that patients with cardiac pain are unable to distinguish the effects of a placebo from those of a xanthine when measures are taken to preclude the identification of the agent by any means other than the relief of pain. It is concluded that the xanthines exert no specific action which is useful in the routine treatment of cardiac pain.

REPORT OF CASES

CASE 1 (F. W., a woman, aged 58).—The diagnosis was arteriosclerosis, hypertension, enlarged heart, coronary thrombosis, regular sinus rhythm, bundle branch block. The habitual status was pain 3+. The duration of study was thirty-seven weeks. The daily dosage of theobromine in order of visits was 15 grains the first week and 30 grains thereafter.

CASE 2 (L. F., a man, aged 41).—The diagnosis was arteriosclerosis, hypertension, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 2+. The duration of study was sixty weeks. The daily dosage of theobromine in order of visits was 30 grains and 15 grains. The daily dosage of aminophylline in order of visits was 12 grains and 9 grains.

CASE 3 (M. A., a man, aged 62).—The diagnosis was arteriosclerosis, coronary sclerosis, sclerosis of the aorta, regular sinus rhythm. The habitual status was pain 2+. The duration of study was fifty-nine weeks. The daily dosage of theobromine in order of visits was 30, 30 and 15 grains.

12. Fowler, W. M.; Hurevitz, H. M., and Smith, F. M.: Effect of Theophylline Ethylenediamine on Experimentally Induced Cardiac Infarction in the Dog. *Arch. Int. Med.* 56:1242 (Dec.) 1935.

13. Wiggers, C. J., and Greene, H. D.: The Ineffectiveness of Drugs upon Collateral Flow After Experimental Coronary Occlusion in Dogs. *Am. Heart J.* 11:527 (May) 1936. Gold, Harry; Travell, J., and Modell, W.: The Effect of Theophylline with Ethylenediamine on the Course of Myocardial Infarction in Experimental Coronary Occlusion, to be published.

CASE 4 (J. G., a man, aged 51).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 1 +. The duration of study was forty-nine weeks. The daily dosage of theobromine in order of visits was 20 grains for the first two and 30 grains thereafter.

CASE 5 (M. S., a man, aged 68).—The diagnosis was arteriosclerosis, hypertension, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was seventy-one weeks. The daily dosage of theobromine in order of visits was 20 grains for the first two and 30 grains thereafter. The daily dosage of aminophylline in order of visits was 12, 12 and 6 grains.

CASE 6 (M. C., a man, aged 61).—The diagnosis was arteriosclerosis, enlarged heart, coronary sclerosis, regular sinus rhythm, bundle branch block. The habitual status was pain 3 +. The duration of study was eighty-three weeks. The daily dosage of theobromine in order of visits was 20 grains for the first week and 30 grains thereafter.

CASE 7 (A. B., a man, aged 60).—The diagnosis was arteriosclerosis, enlarged heart, coronary sclerosis, regular sinus rhythm. The habitual status was pain 2 +. The duration of study was eighty-eight weeks. The daily dosage of theobromine in order of visits was 20, 20, 30 and 30 grains.

CASE 8 (S. K., a man, aged 70).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was seventy-two weeks. The daily dosage of theobromine in order of visits was 30, 30 and 45 grains.

CASE 9 (A. K., a man, aged 53).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was seventy-six weeks. The daily dosage of theobromine in order of visits was 20 grains for the first five and 40, 40, 60, 60 and 15 grains thereafter.

CASE 10 (A. N., a man, aged 62).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, sclerosis of the aorta, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was seventy-two weeks. The daily dosage of theobromine in order of visits was 20 grains. The daily dosage of aminophylline in order of visits was 12 and 9 grains.

CASE 11 (F. B., a man, aged 65).—The diagnosis was arteriosclerosis, hypertension, coronary sclerosis, aortic sclerosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was fifty-four weeks. The daily dosage of theobromine in order of visits was 30, 30 and 30 grains. The daily dosage of aminophylline in order of visits was 12 and 9 grains.

CASE 12 (G. S., a woman, aged 56).—The diagnosis was arteriosclerosis, hypertension, enlarged heart, sclerosis of the aorta, regular sinus rhythm. The habitual status was pain 1 +. The duration of study was seventy-one weeks. The daily dosage of theobromine in order of visits was 15, 20 and 20 grains.

CASE 13 (H. R., a man, aged 55).—The diagnosis was arteriosclerosis, hypertension, enlarged heart, coronary thrombosis, sclerosis of the aorta, regular sinus rhythm. The habitual status was pain 2 +. The duration of study was seventy-four weeks. The daily dosage of theobromine in order of visits was 20, 30, 30 and 40 grains.

CASE 14 (J. C., a man, aged 40).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm with premature contractions. The habitual status was pain 2 +. The duration of study was seventy-six weeks. The daily dosage of theobromine in order of visits was 30, 30 and 30 grains.

CASE 15 (S. O., a man, aged 55).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was sixty-four weeks. The daily dosage of theobromine in order of visits was 15, 30, 30, 20, 40 and 20 grains.

CASE 16 (L. L., a man, aged 44).—The diagnosis was arteriosclerosis, enlarged heart, coronary sclerosis, sclerosis of the aorta, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was fifty-six weeks. The daily dosage

of theobromine in order of visits was 20, 15, 30 and 20 grains. The daily dosage of aminophylline in order of visits was 12, 12 and 12 grains.

CASE 17 (S. N., a man, aged 53).—The diagnosis was arteriosclerosis (diabetes) enlarged heart, coronary thrombosis, aortic sclerosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was seventy weeks. The daily dosage of theobromine in order of visits was 20, 40, 40, 30, 40, 30 and 15 grains.

CASE 18 (M. G., a man, aged 56).—The diagnosis was arteriosclerosis, enlarged heart, coronary thrombosis, regular sinus rhythm. The habitual status was pain 3 +. The duration of study was 120 weeks. The doses of theobromine in order of visits were 20, 40, 20, 30, 15, 15, 30, 30 and 40 grains.

CASE 19 (C. E., a man, aged 68).—The diagnosis was arteriosclerosis, enlarged heart, coronary sclerosis, regular sinus rhythm with ventricular premature contractions. The habitual status was pain 3 +. The duration of study was ninety-seven weeks. The doses of theobromine in order of visits were 30 grains for the first four visits; 25, 15, 30, 15 and 30 grains; the following twelve visits, 15 grains.

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TECHNICAL FACTORS AFFECTING THE TUBERCULIN TEST

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It has been known for some time that tuberculin is extremely heat resistant and that it adheres to glass and other materials after they have been washed and sterilized. Attention has been called to this fact by such workers as Zieler,¹ Smith,² Parish and O'Brien³ and Schick,⁴ and similar facts have been demonstrated for other allergens by Rackemann and Simon.⁵ Krause,⁶ in recalling experiments performed some years ago, has recently called attention to the precautions necessary to secure trustworthy results in immunologic experiments with extracts of tubercle bacilli. We have ourselves repeatedly secured positive reactions in tuberculin-hypersensitive persons when only physiologic solution of sodium chloride (0.85 per cent) was used in syringes previously employed for tuberculin, although these syringes had been washed and boiled and autoclaved. However, it has become increasingly evident to our two groups that insufficient attention is paid to this factor, and we have therefore decided to present jointly further data bearing on this subject.

The danger from such contamination may be illustrated by the following incident: A young physician whose Schick test had been negative several months previously stated that he was now Schick positive. On questioning it was discovered that the Schick test had been made with a syringe previously employed for

From the Children's Hospital Research Foundation and the Department of Pediatrics, Cincinnati, and the Henry Phipps Institute of the University of Pennsylvania, Philadelphia.

1. Zieler, K.: Die Toxineempfindlichkeit der Haut der tuberculös-infizierten Menschen. *Deutsche med. Wchnschr.* 37:2075, 1911.

2. Smith, C. H.: Tuberculin Skin Reactions. *Tr. Am. Pediat. Soc.* 38:81, 1926.

3. Parish, H. J., and O'Brien, R. A.: Heat Stability and "Tenacity" of Tuberculin. *Brit. M. J.* 1:1018 (May 18) 1935.

4. Schick, Bela: Round Table Discussion on Tuberculosis. *J. Pediat.* 7:863 (Dec.) 1935.

5. Rackemann, F. M., and Simon, F. A.: Technic on Intracutaneous Tests and Results of Routine Tests in Normal Persons. *J. Allergy* 6:184 (Jan.) 1935.

6. Krause, A. K., in note on abstract of article by Parish and O'Brien, *Am. Rev. Tuberc.* 34:33 (Oct., abstr. sec.) 1936.

tuberculin. Separate Schick and tuberculin tests were performed with new (previously unused) syringes, and it was demonstrated that he had a positive tuberculin reaction and a negative Schick test.

Following this, simultaneous Schick tests were performed on 125 children with a new syringe for the test on one arm and a syringe previously used for tuberculin and then washed and sterilized on the other arm.

TABLE 1.—Simultaneous Schick Tests with a New Syringe and with a Syringe Which Had Been Previously Used for Tuberculin, Cleaned and Sterilized

Number of Tests	Number Positive to Tuberculin (P. P. D.)	Number Giving Positive Schick Test with Both Syringes	Number Giving Falsely Positive Schick Tests; i. e., "Contaminated" Syringe but Negative with New Syringe
33*	12	12†	4
92†	..	14	3

* From the Children's Convalescent Home of Cincinnati. Syringe autoclaved.

† From the Preventorium of the Hamilton County Tuberculosis Sanatorium. Syringes boiled. Tests performed by Dr. Helen Mabon.

‡ Seven of these gave a 50 per cent greater reaction with the contaminated syringe than with the new syringe, indicating that part of the reactions have been due to tuberculin. None showed the reverse order of reaction.

In seven instances the test was positive in the arm on which the toxin from the syringe previously used for tuberculin was used, while negative in the other arm on which the same amount of toxin was used from a new syringe. The patients injected were tuberculin positive, and these seven reactions must be looked on as falsely positive Schick tests, in reality tuberculin reactions (table 1).

Other incidents have demonstrated that tuberculin may be transferred by articles other than syringes and that rigid technic is necessary to avoid such contamination. An experiment, initiated at the Henry Phipps Institute primarily for the purpose of determining whether nonspecific reactions may occur from the intracutaneous injection of physiologic solution of sodium chloride (0.85 per cent) containing 0.5 per cent phenol, furnished an excellent example of the marked potency of infinitesimal amounts of tuberculin, the presence of which may be entirely unsuspected. In these tests a new syringe was employed, but it was discovered finally that the bottles had been filled with the various diluent solutions from a pipet that had been used previously for tuberculin and then washed and sterilized in the usual manner (tests 1, 2 and 3 in table 2). The seemingly inconsistent results obtained in these three tests, namely, that the largest percentage of reactions occurred with the "buffer diluent" alone and less with the "buffer diluent + 0.25 per cent phenol" and with the "buffer diluent + 0.5 per cent phenol" are probably explained by the fact that this was the order in which the solutions were pipetted into the bottles. Another means of contaminating nontuberculin solutions with tuberculin is illustrated in tests 4 and 5 in table 2. In these instances bottles of diluent were covered with rubber caps that had been employed previously to stopper tuberculin vials and then cleaned and sterilized. Sufficient tuberculin adhered to the rubber cap to "contaminate" the diluent and produce positive tuberculin reactions in persons hypersensitive to tuberculin.

Examination of the data included in table 2 reveals that reactions to "contaminated diluent" occurred only in those persons who had positive reactions to tuber-

culin. For this reason further tests were performed with buffered diluent and with physiologic solution of sodium chloride, both with and without 0.25 per cent and 0.5 per cent phenol. Care was taken to use new glassware, rubber and needles. Positive reactions were not obtained from the use of any of these solutions in either positive or negative tuberculin reactors. It seems clear that, with the ordinary method of cleaning, small amounts of tuberculin may remain adherent to glass and rubber, and probably to other materials, in sufficient amounts to produce a positive tuberculin reaction in persons hypersensitive to tuberculin.

METHODS OF CLEANING SYRINGES

A desire to clean syringes adequately naturally leads to the use of alkali, since this was found to be the best solvent for the tuberculin protein and its fractions during their isolation. Accordingly, a syringe that had been used for tuberculin tests for some time was rinsed with 5 per cent sodium hydroxide solution, subsequently with water, and then sterilized. It was filled with the "buffer diluent + 0.25 per cent phenol" that had been shown to give no reactions and, as noted in table 3, test 1, positive reactions were obtained in some reactors to tuberculin (purified protein derivative [P. P. D.]), indicating that this method of cleaning the syringe was inadequate. Another syringe previously employed for tuberculin was immersed in 5 per cent sodium hydroxide

TABLE 2.—Contamination of Diluting Solutions with Tuberculin by Syringes, Pipets and Rubber Caps; Effect of 0.5 per Cent Phenol in Skin Testing Solutions

Test	Description of Test	Number of Tests	Number Positive to Tuberculin (P.P.D.)	Number Positive to Diluent Among	
				Tuber-cullin Reactors	Negative Tuber-culla Reactors
Contaminated Diluent					
1*	Buffer diluent contaminated by pipet	86	68	19	0
2*	Buffer diluent + 0.25% phenol contaminated by pipet.....	86	68	13	0
3*	Buffer diluent + 0.5% phenol contaminated by pipet.....	50	37	7	0
4†	Buffer diluent contaminated by rubber cap	260	81	27	0
5†	Buffer diluent contaminated by rubber cap and syringe.....	46	13	9	0
6†	0.85% saline solution contaminated by syringe.....	21	21	18	..
Noncontaminated Diluent					
7†	Buffer diluent noncontaminated	7	7	0	..
8*	Buffer diluent + 0.25% phenol noncontaminated	17	12	0	0
9*	Buffer diluent + 0.5% phenol noncontaminated	71	46	0	0
10†	0.85% saline solution noncontaminated	338	97	0	0
11†	0.85% saline solution + 0.25% phenol noncontaminated	30	3	0	0
12†	0.85% saline solution + 0.5% phenol noncontaminated	30	3	0	0

* From the Henry Phipps Institute. The skin tests were performed by Miss Emma Dufour. The diluent solutions were prepared by Mr. John Glenn of the Mulford Laboratories of Sharpe & Dohme.

† From the Children's Hospital Research Foundation. The buffer diluent solution was furnished through the courtesy of Dr. L. T. Clark of Parke, Davis & Co.

over night, rinsed many times with water, sterilized and then filled with "buffer diluent + 0.5 per cent phenol," also shown previously to produce no reactions. Three reactions occurred in nineteen positive reactors (test 3, table 3) to the purified protein derivative, indicating again that this method is not satisfactory for cleaning syringes.

The efficacy of cleaning tuberculin syringes with sulfuric acid-dichromate cleaning mixture and by boiling in soap solution has also been tested. Eight simultaneous tests in tuberculin-positive children were performed with known tuberculin-free physiologic solution of sodium chloride. The syringes employed had previously been used for tuberculin and treated as shown in tests 3 to 8, inclusive, in table 3. Positive reactions were obtained with solutions from the syringes that were simply washed and sterilized or even heated for ten minutes in cleaning mixture. However, the syringes seem to have been cleaned adequately if immersed for twelve hours or more in cleaning mixture or boiled in soap solution for ten minutes.

Since, however, such unusual measures are necessary to make certain that syringes previously used for tuberculin are, after cleaning, free from tuberculin particles, it would seem best to keep separate syringes for tuberculin and other types of skin testing solutions.

THE EFFECT OF 0.5 PER CENT PHENOL IN SKIN-TESTING SOLUTIONS ON THE SKIN REACTION

The experiment (tests 1, 2 and 3, in table 2) originally designed to determine whether 0.5 per cent phenol was capable of producing a skin reaction was repeated. New glassware was used throughout in the preparation and injection of the solutions. Buffered diluents and physiologic solutions of sodium chloride were prepared with 0.25 per cent phenol and with 0.5 per cent phenol (tests 7 to 12, inclusive, table 2). No reactions were obtained to any of these solutions with the exception of an occasional papule 2 or 3 mm. in diameter. Such reactions were as frequent with the physiologic solution of sodium chloride as with the 0.5 per cent phenol and were thought to be due to trauma. Furthermore, five persons having 4 plus or severe 3 plus reactions with tuberculin and at the same time small reactions in the other arm with a buffer diluent containing 0.25 per cent phenol given from a syringe previously used for tuberculin were retested one week later with the control solution. This time a new syringe and needle were used and no reactions occurred. In order to ascertain whether free alcohol on the injected surface might increase the likelihood of nonspecific small reactions, simultaneous tests were performed with physiologic solution of sodium chloride and with physiologic solution of sodium chloride + 0.5 per cent phenol on dry skin surfaces and on skin wet with alcohol. Fifteen children thus received sixty tests. In only one instance was there any reaction after forty-eight hours. This was a papule 2 mm. in diameter from a test with physiologic solution of sodium chloride + 0.5 per cent phenol on a dry arm.

CONFUSION OF THE TERMS PHYSIOLOGIC AND NORMAL SALT SOLUTION

A curious accident indicates the possibility of an unusual source of error. While the experiments described here were in progress, "normal saline" was ordered from the preparation room. There was supplied, however, normal, i. e., molar NaCl (5.8 per cent). This, according to instructions, was put up with and without phenol. All the children tested with these solutions had small reactions with marked redness and slight edema, and twenty-five of thirty-three children who were tested with the hypertonic salt solution + 0.5 per cent phenol had reactions with areas of central necrosis. None of these reactions were larger than 8 mm. in diameter. Similar reactions to hypertonic salt

solutions were observed by one of us (F. B. S.⁷) in animals in the early work of crystallizing tuberculin protein. Such small amounts of crystalline protein were obtained at that time that it was impossible to remove all the ammonium sulfate from the preparations before testing. It was, however, possible to distinguish the salt reactions of marked necrosis from the true tuberculin reaction with much edema.

Although the term "normal saline" is rather widely employed to designate physiologic solution of sodium chloride, it would seem safer to use the term "physiologic" or, even better, to specify the percentage of NaCl.

SUMMARY AND CONCLUSIONS

Evidence is presented on the heat stability of tuberculin and the tendency of tuberculin to remain adherent to glassware and rubber. A certain proportion of tuberculin-positive subjects react to the injection of physiologic solution of sodium chloride from syringes previously used for tuberculin and then simply washed and sterilized. The use of pipets and rubber stoppers, previously employed for tuberculin and subsequently

TABLE 3.—Effectiveness of Various Methods of Cleaning Syringes

Test	Method of Cleaning Syringe in Addition to Sterilization*	Number of Tests in Positive Reactors to Tuberculin	Number of Reactors with Diluent
1†	Rinsed with 5% NaOH.....	5	2
2†	Immersed in 5% NaOH over night.....	19	3
3‡	Washed with water.....	21	18
4†	Heated to fuming for 10 minutes in sulfuric acid cleaning mixture.....	41	1
5‡	12 hours in sulfuric acid cleaning mixture	21	0
6†	24 and 36 hours in sulfuric acid cleaning mixture	42	0
7‡	Washed with water and boiled in soap solution	21	0
8†	Boiled in soap solution, plus 12, 24 and 36 hours in sulfuric acid cleaning mixture	63	0

* The following solutions were used: Test 1, buffer diluent + 0.25% phenol; test 2, buffer diluent + 0.5% phenol; tests 3 to 7 inclusive, 0.85% saline solution.

† From the Henry Phipps Institute. The skin tests were performed by Miss Emma Dufour.

‡ From the Children's Hospital Research Foundation.

cleaned by ordinary methods, may introduce into supposedly tuberculin-free mediums sufficient tuberculin to produce occasional reactions.

The clinical importance of these facts is apparent. When Schick tests were made with syringes previously used for tuberculin and cleaned by ordinary methods, falsely positive Schick tests, in reality tuberculin reactions, were often obtained. The danger in the employment of tuberculin syringes in routine allergy tests, as with pollen proteins, is also apparent.

Phenol in concentrations of 0.25 and 0.5 per cent in physiologic solution of sodium chloride does not cause a reaction simulating the tuberculin reaction.

The most effective methods of cleaning syringes to destroy all traces of tuberculin are boiling in soap solution and prolonged immersion in sulfuric acid-potassium dichromate cleaning fluid. It is probably safer and more practical, however, to use syringes never before used for tuberculin whenever a tuberculin reaction might confuse the result, as in the Schick test or in various protein allergy tests.

7. Seibert, F. B.: Chemical Composition of Active Principle of Tuberculin; X. Isolation in Crystalline Form and Identification of Active Principle of Tuberculin, *Am. Rev. Tuberc.* 17: 402 (April) 1928.

ZINC SULFATE PROPHYLAXIS IN
POLIOMYELITIS

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The increasing number of inquiries coming from physicians in various sections of the country makes it desirable to publish at this time a note on the results of recent work on chemoprophylaxis in experimental poliomyelitis and to suggest a procedure which may hold something of practical value in controlling the spread of this disease in man during epidemic periods.

The more fundamental aspects of the disease which initiated these studies have been summarized by one of us in an earlier article in *THE JOURNAL*.¹ The chief facts that need to be carried in mind to follow the logic of this new approach are briefly as follows:

1. The disease is caused by a highly neurotropic virus, which in size is among the smallest of known ultramicroscopic viruses.²

2. In monkeys, and probably in man also, the virus reaches the central nervous system by way of the olfactory nerve. Complete section of both olfactory tracts in monkeys definitely prevents invasion of the central nervous system by virus subsequently instilled intranasally.³

3. Virus reaching any part of the nervous system, either peripheral or central, travels by axonal paths, probably largely or entirely inside the protoplasmic substance of neurons. This conclusion is supported by the effect of sectioning nerve paths,⁴ by the results of sampling different parts of the nervous system during various stages of the infection,⁵ by the appearance of intranuclear inclusion bodies in some of the nerve cells⁶ and by the fact that nerve cell degeneration is primary and largely independent of the inflammatory reactions seen in the fully developed disease.⁷ It is supported also by observations which indicate that immune serum is not effective in reducing the severity of the experimental disease in monkeys, and this even when the serum is administered several days before the onset of

symptoms.⁸ The results of more critical studies on the value of serum therapy in the human disease are in harmony with these observations in animals.⁹

4. So far as is known, the actual portal of entry, which in general is through the olfactory area, may be either the olfactory hairs, the "olfactory cells" (cell bodies of the first neurons), which lie quite superficially in the olfactory mucosa, or the perineural spaces of the olfactory nerves, or some combinations of these. Whichever of these it may be, it is quite clear from recent experimental studies that immune serum even in very large doses is not significantly effective in preventing infection with virus which is subsequently administered by the nasal route.¹⁰ This suggests that it is not necessary for the virus to pass a barrier of immune serum to reach its destination in the central nervous system.

5. Vaccines also have not proved significantly effective in establishing resistance against infection by the intranasal route.¹¹ The action of vaccines, even of living vaccines, seems to be limited largely or entirely to the stimulation of antibody formation, but, as has already been pointed out, humoral antibodies do not in themselves provide an effective barrier against either invasion or the subsequent dissemination of the virus in the nervous system. When a nonliving (inactivated) vaccine is used even the stimulus to antibody formation tends to drop out of the picture.

6. Acquired active immunity to this disease seems to depend primarily on some kind of modification of the protoplasm of the nerve cell, a modification which is brought about only by intimate contact of the cell with the virus.¹² However, thus far no method has been found which, in monkeys at least, will provide this intimate contact without also producing paralysis.

7. Although naturally acquired active immunity to poliomyelitis is generally associated with humoral antibodies, these seem to constitute merely an adventitious by-product of the infection and are probably largely the result of a reaction to virus which has left its natural nervous channels and come in contact with the antibody-producing mechanism of the body.¹³

8. Many normal adults without knowledge of a previous exposure to poliomyelitis show antibodies for the virus in their blood, and this sometimes in high concentrations,^{13b} but if the presence of such antibodies in normal persons is always associated with an acquired active immunity to this disease, which appears not to be true,¹⁴ they should probably be regarded as merely indicators of an earlier infection and not so much as active participants in the state of resistance.

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13. (a) Footnote 12. (b) For a review see: Harmon, P. H., and Harkins, H. N.: The Significance of Neutralizing Substances in Resistance and Recovery from Poliomyelitis, *J. A. M. A.* **107**: 552 (Aug. 22) 1936.

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In short, a fuller understanding of the pathogenesis of this disease has not only served to explain the uncertain results that have been obtained with serums and vaccines but left the profession also with comparatively little hope of controlling the disease by such orthodox means. The present status of our knowledge of this disease, therefore, indicates that the only real hope of bringing it under control lies in modifying the normal portal of entrance by some measure which will insure at least temporary protection to the susceptible individual.

The idea that certain chemicals applied to the olfactory mucosa might in some way modify its permeability to the virus seems to have occurred to three independent groups of workers about the same time. In May 1935 Armstrong and Harrison¹⁵ of the National Institute of Health in Washington reported that monkeys treated intranasally with a 4 per cent sodium aluminum sulfate (alum) solution exhibited a high incidence of resistance to subsequent intranasal instillation of virus. Some months later, Sabin, Olitsky and Cox¹⁶ of the Rockefeller Institute confirmed these observations and reported that 4 per cent tannic acid also exercises a protective action. Early in 1935, after making a study of the value of serums and vaccines in preventing the experimental disease and having before us earlier observations which indicated that preliminary intranasal irrigation with phosphate buffer solutions of different p_H influences differently experimental infection by the intranasal route,¹⁷ we began carrying out a few small experiments to elicit whether some degree of protection might be obtained against this disease by means of chemicals that might in some way decrease the permeability of the olfactory area. The results of initial tests in which we used tannic acid did not appear especially encouraging, and so we turned our attention to other agents, among them trinitrophenol (picric acid), paranitrophenol, trinitrocresol and mercurochrome, which we thought might modify the portal by their staining or some other local action. All those mentioned were found to exercise a definite protective action, but what came as a great surprise to us was the duration of the resistance induced by at least one of these agents. Feb. 5, 1936, we reported¹⁸ to the Pacific Coast Section of the Society for Experimental Biology and Medicine the important fact that monkeys given several successive daily intranasal washes with picric acid may without further treatment remain resistant to repeated instillations of virus for more than a month. Several weeks later (February 28) a paper by Armstrong and Harrison¹⁹ appeared, also testifying to the protective action of picric acid. Their results were in all essentials like ours except that they did not determine the duration of the protection that the picric acid had afforded.

Thus far we have tested the protective value of forty chemical agents. We undertook to test this many in

order to determine as fully as possible the range of substances which may convey a more or less well defined protection against subsequent intranasal instillations of virus in monkeys. The results will be published in full later. In this paper we wish merely to announce that out of the array of substances which we have tested there is one, namely, zinc sulfate, which because of its simple composition, relatively low toxicity and surprisingly high protective action in monkeys seems to deserve a trial in man. Because of the remarkably uniform results obtained in our initial experiments we proceeded to make a more exhaustive study of this agent than we have of the others. More than 240 animals have now been treated intranasally with different concentrations of zinc sulfate in solution, administered a varying number of times and at different intervals of time, and the resistance of these test animals has been compared with a total of nearly 300 untreated controls.

We may summarize the results very briefly by saying that two or three successive daily intranasal sprays with a 1 per cent solution of zinc sulfate in physiologic solution of sodium chloride (0.9 per cent NaCl) will generally protect all, or nearly all, of the animals so treated against virus administered one month after the treatments have been applied. This degree of protection is exhibited under sufficiently heavy instillations of virus to bring down about 90 per cent of the controls. Zinc sulfate affords not only a higher percentage of protection in monkeys than picric acid, or picric-alum in equivalent concentrations, but also a more lasting resistance.²⁰ Many of our treated animals have survived repeated virus instillations for two and even three months, following one or more intranasal applications of the zinc sulfate solution. In an experiment now in progress, twelve monkeys were each given one intranasal spray with a 1 per cent solution of zinc sulfate in physiologic solution of sodium chloride. Virus instillations were begun a week later and have been kept up on five successive days each week for seven weeks to date; two additional sprays with zinc sulfate two weeks and four weeks, respectively, after the first treatment have punctuated these virus instillations, the latter being continued without further treatment twenty-seven days after the last spraying with zinc sulfate. Thus far, only two of the animals have succumbed to poliomyelitis, while the disease has developed in all of the eleven controls with which we started the experiment. In another experiment, in which eight monkeys were given a single intranasal spray with a solution containing 1 per cent zinc sulfate and a local anesthetic of 0.5 per cent pontocaine²¹ (para-butylaminobenzoyldimethylaminoethanol hydrochloride) and without further treatment were given seven virus instillations from twenty-five to thirty-two days later, seven survived the virus instillations, while all of the eight controls became infected.

The remarkable protection yielded by this simple and relatively nontoxic agent in animals suggests the desirability of carrying the investigation over to man. We say "investigation" advisedly, for it does not necessarily follow that the results which have been obtained in monkeys apply equally in man. Therefore, with the most important question still to be answered—that of its effectiveness in man—there must be no relaxation of the principles that must guide a research in carrying

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17. Schultz, E. W., and Gebhardt, L. P.: Observations on the Intranasal Route of Infection in Experimental Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* **30**: 1010 (May) 1933.

18. Schultz, E. W., and Gebhardt, L. P.: Prevention of Intranasally Inoculated Poliomyelitis in Monkeys by Previous Intranasal Irrigation of Chemical Agents, *Proc. Soc. Exper. Biol. & Med.* **34**: 133 (March) 1936; *Chemoprophylaxis of Poliomyelitis*, California & West. Med. **45**: 138 (Aug.) 1936.

19. Armstrong, Charles, and Harrison, W. T.: Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into the Nostrils, *Pub. Health Rep.* **51**: 203 (Feb. 28) 1936.

20. Schultz, E. W., and Gebhardt, L. P.: Zinc Sulfate as a Chemoprophylactic Agent in Experimental Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* **35**: 524 (Jan.) 1937.

21. Pontocaine is a product of the Winthrop Chemical Company.

the investigation over to man, for, unless great care is exercised, no really helpful information will be likely to come out of such further work. In a critical review of the application of picric-alum solution in Alabama last summer, Armstrong²² points out the pitfalls that beset a satisfactory field test. The observations that he presents in this paper make it very clear that the application of a prophylactic measure such as this must be kept entirely in the hands of those who are fully competent to apply it properly. It is not a prophylactic measure which can be turned over to the public for self administration. It is already known that in order to be effective the agent must be actually applied to the olfactory mucosa and that adequate coverage of this area is not assured by self administration with an ordinary hand atomizer.

With these considerations in mind, we would suggest the following procedure in carrying this investigation over to man:

1. The use of a solution containing 1 per cent zinc sulfate, 0.5 per cent sodium chloride and 1 per cent local anesthetic (pontocaine) as suggested.

2. The solution should be prepared with U. S. P. zinc sulfate, U. S. P. sodium chloride and distilled water.

3. It should be applied at least once every two weeks during times when the risk of infection is great. A more desirable procedure would be to apply the agent on two or three successive days and once every two weeks thereafter. The latter would naturally prove more difficult to carry out in actual practice.

4. It should be applied with an atomizer equipped with a suitable tip and in accordance with the technic described by Dr. Max Peet in this issue of THE JOURNAL.²³

5. Since the zinc sulfate solution thoroughly applied in this manner may be somewhat painful, Dr. Peet suggested several months ago that we determine whether the addition of 0.5 per cent pontocaine to the zinc sulfate solution detracts in any way from its protective action. From the results of tests on thirty-two monkeys treated with a solution containing 1 per cent zinc sulfate and 0.5 per cent pontocaine we can say definitely that pontocaine in no way detracts from the protective action of the zinc sulfate. The influence of other local anesthetics on the prophylactic action of this agent are now being studied by us.

6. The prophylactic zinc sulfate mixture should be administered under the auspices and supervision of national, state or local health organizations, aided by members of the medical profession who have been instructed in the special technic that should be followed. This calls for some previous organization of local health forces.

7. A record should be kept in the local health office of all persons treated. These should bear the name, age, address of the person treated, dates of all treatments and a notation of any anatomic conditions in the nasal passages which may have interfered with a satisfactory application of the solution. The general health of the individual should also be noted.

8. Those who supervise the treatments should be alert to any possible side actions or important harmful local or general effects. While we have not observed any noteworthy gross or microscopic changes in the nasal mucous membranes of monkeys treated repeat-

edly with zinc sulfate other than a mild grade of inflammation, such as may be seen at times even in untreated monkeys, it nevertheless seems important to suggest alertness to any effects which may contraindicate the general use of this agent or agents if pontocaine is included in the solution. Although there is no good reason to believe that zinc sulfate, in the small amounts required to cover the olfactory area, would produce any undesirable or harmful effects, either local or general, idiosyncrasies should be kept in mind.

9. Any objectionable or undesirable effects from the treatment should be reported to the local health officer, who should enter the information on the card and take such steps as may seem desirable.

10. In measuring the results later, only those persons who have received adequate treatments under competent supervision and for whom there is a record of treatment on file should be considered as having received valid treatments. Claims of self administration of the solution should not be regarded as valid.

The first practical human application of any such laboratory observation as this must of necessity be in the nature of an investigation, and unless this part of the work is carried out with care it is unlikely that any significant additional information will be obtained from such field application. While further laboratory studies may in time lead to a more satisfactory procedure, the immediate task before the profession is to make the best possible use of the most promising practical measure now available for the control of this disease.

THE CHEMICAL PROPHYLAXIS FOR POLIOMYELITIS

THE TECHNIC OF APPLYING ZINC SULFATE INTRANASALLY

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AND

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The recent discovery that certain chemicals applied to the olfactory area of the nose in monkeys gives a temporary immunity against subsequent instillations of an active poliomyelitis virus is the first definite evidence that this disease can be prevented and offers the hope that similar prophylactic treatment in children will likewise protect them. In 1935 Armstrong and Harrison¹ of the United States Public Health Service reported that monkeys could be protected against intranasal inoculations of poliomyelitis virus by previous douching of the nose with solutions of alum, trinitrophenol (picric acid) or a combination of the two. A rather extensive field application of this type of prevention² was made in the summer of 1936, but the nasal spray applications were generally carried out in such a manner as to indicate, in the light of later work, that the majority of the children received no protection.

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2. Armstrong, Charles: Experience with Picric Acid-Alum Spray in Prevention of Poliomyelitis in Alabama, 1936, *Am. J. Pub. Health* 27: 103 (Feb.) 1937.

22. Armstrong, Charles: Experience with the Picric Acid-Alum Spray in the Prevention of Poliomyelitis in Alabama, 1936, *Am. J. Pub. Health* 27: 103 (Feb.) 1937.

23. Peet, M. M.; Echols, D. H., and Richter, H. J.: The Chemical Prophylaxis for Poliomyelitis: The Technic of Applying Zinc Sulfate Intranassally, this issue, p. 2184.

In 1936 Schultz and Gebhardt³ showed that a solution of zinc sulfate gave a more lasting and a higher degree of protection than any other chemical of a long list, including alum and picric acid. The demonstration by Schultz and Gebhardt⁴ that a single spraying of 1 per cent zinc sulfate protects an animal for at least three weeks against repeated intranasal instillations of an active virus increased the practicability of applying chemical prophylaxis to human beings.

This experimental work of Armstrong and Schultz now offers the first definite hope of controlling infantile paralysis, since the various vaccines that were advocated as protection in human beings have completely failed to protect monkeys against an intranasal inoculation of the virus. Extensive research work has shown that the virus probably enters the body only through the olfactory nerves.⁵ Intracranial division of these nerves completely protects the monkeys against subsequent intranasal inoculations of the virus. This demonstration that the virus enters only through the olfactory nerves, combined with the proof that a 1 per cent zinc sulfate solution so modifies the portal of entry that the virus cannot pass, provides a definite lead for extensive field trials in the prevention of poliomyelitis in children.

Several questions are immediately presented: First, will zinc sulfate be as effective in protecting human beings as monkeys? This can be determined only by actual clinical use during an epidemic. Second, will the application of this prophylactic measure be free from danger? Zinc is a harmless metal, and authorities agree that there is no evidence of the existence of chronic zinc poisoning. Zinc sulfate has long been used in diseases of the eye and nose without a single instance of serious harm resulting. With such a weak solution as 1 per cent, the strength recommended for nasal instillation, and in the small quantity used, we feel certain that no serious sequelae will result. However, it was found that when zinc sulfate was actually applied to the olfactory area^{6,7}, produced a severe burning or smarting sensation with coryza and in most subjects a severe headache, which lasted for several hours. Zinc sulfate introduced into the lower portion of the nose does not produce such symptoms. It is only when it is applied to the olfactory area that this pain results. While the probable protection afforded would justify this discomfort, it was felt advisable to eliminate the pain as much as possible. It was found that the local anesthetic pontocaine hydrochloride, added to the zinc sulfate solution, would minimize and in many cases completely eliminate the discomfort that follows high nasal instillations of 1 per cent zinc sulfate alone. Various percentages of the local anesthetic were tried. Five-tenths per cent pontocaine gave considerable relief, but a 1 per cent solution was much more effective, and in twenty of a group of twenty-five subjects little or no real discomfort was noted. However, a few adults complained of a dull headache of from one to several hours' duration after the immediate effect of the anesthetic had disappeared. Children were less adversely affected by the zinc sulfate, and in none of the children tested was headache noted when the 1 per cent panto-

caine was added to the spray. The burning or smarting sensation felt immediately after the instillation of 1 per cent zinc sulfate without pontocaine was not observed when the local anesthetic was used.

A careful review of the literature fails to disclose any instance of pontocaine poisoning. The probabilities are that in a very wide application of this treatment individuals may be found who do have an idiosyncrasy to this anesthetic. However, even in susceptible persons one would not expect serious reactions, since the anesthetic is applied only on the surface, in a dilute solution, and in a total quantity of not more than 2 cc. The local anesthetic could, of course, be applied to the olfactory area as a surface spray before the application of the zinc sulfate. Such a procedure is no more effective and has certain disadvantages, especially in an extensive field application such as would be necessary in a threatened epidemic. Two intranasal applications would require double the time for their administration and certainly in small children it would be much simpler to get cooperation for a single spraying than for two. We therefore advise the use of a solution

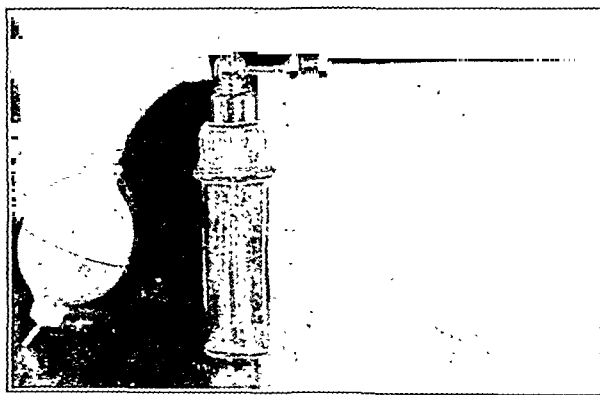


Fig. 1.—The type of atomizer recommended for spraying the roof of the nose.

containing 1 per cent zinc sulfate, 1 per cent pontocaine hydrochloride and 0.5 per cent sodium chloride (to make the solution more nearly isotonic).

The question naturally arises Does the zinc sulfate and pontocaine mixture have any harmful effect on the olfactory nerves? Careful investigation of this problem has been undertaken. A group of medical students were carefully tested by Elsberg's⁸ method of quantitative olfactometry before and after the zinc sulfate spray or the zinc sulfate and pontocaine spray had been applied to the olfactory area. When the solution has been properly applied to the upper nasal mucous membrane the sense of smell is temporarily lost, or at least impaired, but always returns to normal in a week to two weeks. The rapidity of recovery is dependent on the number of consecutive days the zinc sulfate has been used.⁷

The actual application of the zinc sulfate solution to the olfactory area has been found more difficult than was anticipated. It is apparently much simpler to cover the olfactory area in monkeys than in human beings. This we have demonstrated by spraying both monkeys and children with radiopaque substances such as skiodan and thorium dioxide sol,⁸ using an ordinary atom-

3. Schultz, E. W., and Gebhardt, L. P.: Prevention of Intranasally Inoculated Poliomyelitis in Monkeys by Previous Intranasal Irrigation with Chemical Agents, *Proc. Soc. Exper. Biol. & Med.* 34: 133 (March) 1936.

4. Schultz, E. W., and Gebhardt, L. P.: Zinc Sulfate Prophylaxis in Poliomyelitis, *THE JOURNAL*, this issue, p. 2182.

5. Schultz, E. W., and Gebhardt, L. P.: Olfactory Tract and Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* 31: 728 (March) 1934. Brodie, Maurice, and Elvidge, A. R.: The Portal of Entry and Transmission of the Virus of Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* 31: 729 (March) 1934. Lennette, E. H., and Peet, M. M.: Isolation of Olfactory Tracts to Intravenous Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* 31: 730 (March) 1934.

6. Elsberg, C. A., and Levy, Irwin: Sense of Smell; New and Simple Method of Quantitative Olfactometry, *Bull. Neurol. Inst. New York* 4: 1 (March) 1935.

7. Echols, D. H.; Richter, H. J., and Peet, M. M.: The Effect of Zinc Sulfate on the Sense of Smell, *Univ. Hosp. Bull.* 3: 32 (May) 1937.

8. Because of the radioactivity of thorium dioxide sol we did not use children who had a life expectancy of more than one year.

izer. With the monkeys' heads tilted slightly backward, the olfactory area was thoroughly covered. However, in children, the radiopaque material did not regularly reach the cribriform plate when applied in an identical manner. With the patient held in the Proetz position (patient on the back with the head hanging over the edge of the table) thorium dioxide sol sprayed by the



Fig. 2.—Proper application of the spray.

ordinary method would reach the olfactory area in some children but in many others it would not. Shrinkage of the nasal mucous membrane preliminary to spraying did not always aid in reaching the olfactory area. Direct nasal examination after spraying a large number of children with methylene blue showed that in practically all instances the solution did not go above the middle turbinate if an ordinary atomizer was used with the tip of the spray introduced only slightly within the nostril. It was this type of spraying that was used extensively during the summer of 1936 in Alabama, and we now feel convinced that a large proportion of the children did not receive adequate prophylactic treatment. From our experiments in which radiopaque substances and certain dyes were used, it is evident that the spray must be applied directly to the olfactory area. Such application can be made under direct vision with an atomizer⁹ with a long, narrow metal tip (fig. 1).

Nasal douching with the head in the Proetz position might be as effective in some children as a properly applied spray. However, it would require larger quantities of the solution with the probability that some of the anesthetic would enter the accessory sinuses and pharynx with the possibility that the cough reflex might be abolished, thus predisposing to pneumonia. The Proetz position with instillation of zinc sulfate by dropper may of necessity be used when small children are so uncooperative that insertion of the nasal spray tip is impossible. Under these circumstances the pontocaine should be omitted. The child should be kept in the head-down position for about two minutes.

We recommend the following method of application: The subject is seated and an attendant holds the head tilted backward about 45 degrees (fig. 2). This is the usual position for a nasal examination. A speculum

is introduced into the naris and under direct vision the spray tip is inserted upward along the septum until definitely past the middle turbinate (fig. 3). If it impinges on the roof of the nose it is slightly withdrawn. The bulb is squeezed the number of times required to introduce 1 cc. of solution. This amount, according to our x-ray and necropsy evidence, completely covers the olfactory area. A similar procedure is then carried out on the opposite side of the nose. Loss of the olfactory sense is thus obtained.

Only slight discomfort is felt when the spray tip is passed through the narrow cleft between the middle turbinate and the septum or when it touches the roof of the nose. If the nasal passage is found occluded on direct inspection the nasal mucous membrane should be shrunk by the application of ephedrine or benzedrine inhalant preliminary to the insertion of the spray tip. A power sprayer can be used instead of the hand bulb but should not deliver more than a few pounds of pressure. The quantity delivered by the power sprayer should be definitely determined and not more than 1 cc. of the solution introduced into each side of the nose.

According to the experimental work of Schultz, a single spray of zinc sulfate and pontocaine is sufficient to protect animals for at least two weeks. However, in our experiments on man we have repeated this spray for three successive days. Such intensive spraying, while perhaps not necessary, does give greater assurance of complete coverage, since on the first application of the spray there may be small areas covered by tenacious secretions which conceivably would not be present on the same areas on succeeding days. Possibly in an extensive field application of the zinc sulfate for the prevention of poliomyelitis a single spray repeated at intervals of two weeks would be sufficient; however, we recommend daily spraying for three consecutive days, then single sprays at intervals of two weeks.

It is evident that to be effective the spray must be directly applied to the olfactory area. We wish especially to emphasize this point. Ordinary spraying with

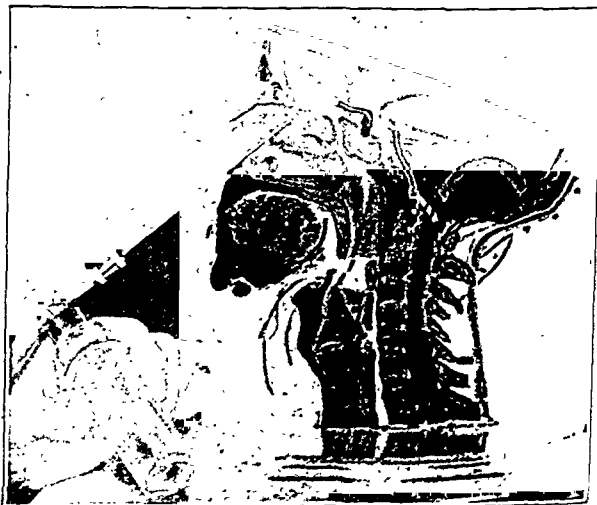


Fig. 3.—Tip of atomizer in proper position.

the atomizer tip introduced below the middle turbinate will not suffice except in isolated instances. Therefore, to offer a child the only protection now known for the prevention of infantile paralysis, the spray solution must be actually applied to the olfactory area, and this can be accomplished only under direct observation with proper equipment and by one trained in this particular

9. The spray used in this work was a DeVilbiss Atomizer No. 156 with spray tip No. 156 N. C.

technic. It is not a procedure which can be applied by the parents or by a physician not familiar with intranasal work.

SUMMARY

The definite proof that a 1 per cent zinc sulfate solution applied to the olfactory area affords a high degree of protection against intranasal instillations of active poliomyelitis virus in monkeys offers definite hope that a similar application will protect human beings from this disease. The actual proof, however, can be determined only by an extensive field trial in the presence of a threatened epidemic.

A 1 per cent zinc sulfate solution can be safely applied to the olfactory area but if used alone produces varying degrees of discomfort, such as burning or smarting in the nose, coryza and more or less severe headache lasting sometimes for several hours. The addition of a local anesthetic such as pontocaine will largely relieve this discomfort. The spray solution recommended is 1 per cent zinc sulfate, 1 per cent pontocaine and 0.5 per cent sodium chloride. This must be applied directly to the olfactory area.

The use of an atomizer with the ordinary tip introduced into the naris is of no value, since in the majority of cases the spray does not pass upward beyond the middle turbinate. A special spray tip must be introduced to the region of the cribriform plate under direct vision. At least 1 cc. of solution should be sprayed over each olfactory area. This procedure can be carried out effectively only by one trained in its technic.

AN ERYSIPELAS-LIKE ERUPTION COMPLICATING DERMATO- PHYTOSIS

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The increased amount of attention focused on fungous infections in recent years has given rise to an ever greater number of new studies and observations. It has been interesting to note that in some instances cases of dermatophytosis of the feet are complicated by an eruption which bears great resemblance to erysipelas. The importance of recognizing this condition and differentiating it from true erysipelas is of obvious importance and prompts this report of eight cases.

REPORT OF CASES

CASE 1.—C. W., a man, aged 52, presented by one of us¹ at the March 1935 meeting of the New York Dermatological Society, complained of an eruption which had appeared on several occasions over a period of a year. The eruptions were of an erysipelas-like character and usually appeared on the lower part of either leg. Sometimes the two legs were involved at the same time. They were characterized by marked erythema and swelling together with considerable local heat and pain. A few attacks were accompanied by slight constitutional symptoms. The eruption lasted for periods varying from a few weeks to two months, and the patient noticed that walking or standing aggravated the condition. There was a slight amount of scaling and fissuring in the interspaces of the toes of both feet of which the patient was completely unaware. Microscopic examinations confirmed the diagnosis of dermatophytosis of the toe spaces. After repeated cultures we were able to grow *Trichophyton interdigitale*. Blood cultures were negative.

From the Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital, Columbia University.

1. Traub, E. F.: *Dermatophytosis with an Erysipelatous Dermatophytid of the Legs*, Arch. Dermat. & Syph. 33: 196 (Jan.) 1936.

Intradermal tests with trichophytin and oidiomycin were negative after forty-eight hours. Following the injection of trichophytin and oidiomycin, a flare up occurred on the dorsum of the left foot, the disease having been quiescent when the patient was first seen. The patient did not have a rise in temperature at this time. We had considered the erysipelas-like eruption to be an "id" and had expected a positive reaction to the intradermal tests. At the suggestion of Dr. Sulzberger and Dr. Barthel we then decided to repeat the tests and selected sites on the lower portion of the leg and the upper part of the arm. Within ten minutes of the trichophytin injections a wheal with pseudopods and a larger surrounding area of erythema developed in the arm. On the leg, surrounding the site of the trichophytin injection, a large hot, swollen erythematous reaction appeared which definitely simulated the erysipelatous eruption on the dorsum of the foot. The reaction reached its height in thirty minutes and had disappeared at the end of forty-eight hours. Oidiomycin tests were negative. Blood serum obtained from the patient was used for passive transfer tests. A normal control was selected and test sites were prepared. These sites were tested with various types of streptococci and staphylococci and with oidiomycin and trichophytin. Only the site tested with trichophytin gave an immediate positive wheal reaction. Reagents to trichophytin were apparently present in the patient's serum. We treated the patient with a fungus vaccine (*Trichophyton interdigitale*) every five days. After the fourth injection the left leg and foot were no longer red or swollen. Scaling was still present between the toes.

CASE 2.—K. A., a man, aged 35, seen June 1, 1927, complained of recurrent attacks of pain in the left popliteal space, which were followed by eruptions appearing on the left foot, ankle or leg. The attacks had been occurring over a period of twenty years. The first attack occurred while the patient was on a train journey. It was

ushered in by pain under the left knee, followed within a few hours by pain, redness and swelling in the left foot. At that time the entire left foot up to a few inches above the ankle was involved. A diagnosis of erysipelas was made. Chills and a high temperature accompanied the attack, which lasted about a week. Fever (from 102 to 104 F.) always was present during the subsequent attacks, all of which were limited to the legs.

When he was seen in June 1927 there was a red area about 1½ inches in diameter just below the tubercle of the right tibia. This area was distinctly infiltrated. The temperature ranged from 102 to 104. Dermatophytosis was present on both feet and mycelia were recovered from the right instep. The patient was seen again in March 1935 at the onset of another attack. At that time the eruption appeared on the left leg.

CASE 3.—H. B., a man, aged 52, seen in November 1923, complained of redness and swelling on the left ankle. The eruption simulated erysipelas in appearance and lasted one week. A second attack occurred in December 1924, the redness, swelling and general symptoms not being as severe as in the previous attack. A specimen from the fourth left toenail was loaded



Fig. 1 (case 1).—Left leg, showing the erysipelas-like dermatophytid, which appears close to the primary focus on that foot.

with mycelia. Culture also was positive. In August 1933, the patient appeared again, complaining of an attack which followed a great deal of walking on hard pavements. He complained too of loss of appetite and feverishness. The temperature was 99.6. There was a diffuse redness and swelling involving the left metatarsal region on the dorsal and plantar surfaces. The first and second toes of this foot also were red and swollen. The toenails and interspaces showed evidence of dermatophytosis. The trichophylin and oidiomycin forty-eight hour tests were negative. There was no immediate wheal reaction to the trichophylin injection. Nov. 1, 1935, the patient again appeared at the clinic with an erysipelas-like redness and swelling of the left leg. On this occasion the patient stated that he suffered with chills and fever. Within three days under treatment with boric acid wet dressings the redness and swelling almost entirely subsided.

CASE 4.—B. P., a woman, aged 54, complained of recurring attacks of an eruption on the left foot. The first attack appeared in July 1930 with chills, a temperature of 104 and redness on the dorsum of the left foot. This attack lasted for four days.



Fig. 2 (case 1).—Very slight degree of involvement of the left foot positive in both smear and culture.

Several attacks have occurred since, some severe, necessitating lying in bed for the duration of the attack and some mild with no fever. It is always the left foot and leg that become involved. When seen in February 1931 there was distinct swelling of the left leg without any edema. Fungi were recovered from three of the toenails and spaces of the left foot.

The involvement of the foot consisted of a slight amount of white maceration in several of the interspaces with several tiny vesicles on the toes, the lesions being so trivial that they were difficult to detect. The left leg has remained slightly increased in size with swelling since the first attack occurred.

CASE 5.—J. E., a man, aged 34, first appeared in the clinic Aug. 12, 1935, complaining of recurring eruptions on the left leg for two years. Examination revealed a marked erythema with swelling of the lower third of the leg. There was some scaling and vesiculation on the soles and toes. A diagnosis of dermatophytosis with an erysipelas-like "id" was made. Fungi were demonstrated microscopically in the first toenail on the toes and on the sole of the left foot. Positive reactions to trichophylin and oidiomycin were obtained after forty-eight hours. The patient was presented before the New York Academy of Medicine by one of us.²

CASE 6.—P. P., a man, aged 35, appeared in the clinic June 24, 1935, complaining of an eruption on the right hand and right foot. Examination revealed vesicular and scaly lesions

on the palm and fingers of the right hand. The interspaces of the toes of both feet showed vesicles, scaling and fissuring. On the dorsum of the right foot there was a large erythematous, slightly swollen area which was diagnosed an erysipelas-like "id." No constitutional symptoms were present. Fungi were demonstrated in the second right toenail. There was no immediate wheal reaction to the trichophylin test. The patient did not return and we were unable to record his forty-eight hour reaction to this test.

CASE 7.—T. D., a woman, aged 39, appeared at the clinic May 20, 1935, complaining of an eruption on the left leg. The eruption had been present for two weeks. On the middle third of the left leg there was an area about 4 inches in diameter which was fairly well circumscribed, reddish and warm to the touch. The patient had had no previous similar attacks. There were no constitutional symptoms. In the toe spaces of both feet there was some scaling and maceration. Fungi were recovered from the first toenail of the left foot. The forty-eight hour trichophylin test was negative. The oidiomycin test was positive (2+).

CASE 8.—A. Q., a man, aged 54, appeared at the clinic Aug. 17, 1936, complaining of recurring attacks of redness and swelling of the left foot. The condition had been occurring over a period of three years. Examination revealed marked redness, heat and swelling of the anterior half of the left foot. Scaling and maceration was present in all the toe spaces. Fungi were demonstrated in the second interspace of the left foot and *Trichophyton purpurem* was recovered in culture. The forty-eight hour trichophylin test was negative and the oidiomycin test was weakly positive (1+).

COMMENT

Cases of recurring erysipelas of the legs associated with infections of the feet have been reported. McGlasson³ reported a series of seventeen cases of recurrent erysipelas of the legs with dermatitis of the feet. Amoss⁴ reported a series of twenty-three cases of recurring erysipelas of the legs successfully treated with subcutaneous injections of streptococcus filtrate. Both of these authors assumed that streptococci were the causative agents. McGlasson did not find bacteria that could be considered causative agents, and Amoss stated that in a few cases he was able to grow hemolytic streptococci from the debris at the edge of the toenails. The finding of streptococci on the skin as in Amoss's cases raises an important question. In this connection it should be pointed out that Jordan⁵ of Jadassohn's clinic reported a series of 150 cases, in which he was able to demonstrate streptococci on the skin of 148. The patients were normal persons without skin lesions. The finding of streptococci on the skin is not necessarily proof that lesions have been caused by these organisms. The point here is not that these recurrent cases of erysipelas cited were not caused by streptococci but rather that some of the cases may have been attributable to fungi. In every one of Amoss's cases he found a fungous infection of the feet. Also a number of McGlasson's patients had *tinca pedis*. In commenting on McGlasson's paper, Williams⁶ in 1926 stated that "McGlasson reported cases with an erysipelas-like eruption on the legs and in each case a dermatophytosis of the feet, and that he found no bacteria which could be considered a causative factor. This immediately raises the question whether these cases of apparent erysipelas were not due to the dermatophytosis." At that time Williams stated that the secondary eruptions (the dermatophytids) the outbreak of which may be accompanied by constitutional symptoms such

3. McGlasson, I. L.: Recurrent Erysipelas of Legs with Dermatitis of Feet, *Arch. Dermat. & Syph.* 14: 679 (Dec.) 1926.

4. Amoss, H. L.: *Ann. Int. Med.* 5: 500 (Oct.) 1931.

5. Jordan, cited by Zeisler, E. P., in discussion on Mitchell, J. H.: Streptococcal Infection Simulating Ringworm of the Hands and Feet, *J. A. M. A.* 104: 1224 (April 6) 1935.

6. Williams, C. M.: Personal communication to the authors.

2. Traub, E. F.: Dermatophytosis: Erysipelatous Dermatophytid, *Arch. Dermat. & Syph.* 33: 924 (May) 1936.

as fever, headache and prostration, may vary in appearance. In his discussion of our case 1 at the New York Dermatological Society in March 1935, Williams stated:

In all these cases there is an eruption which resembles erysipelas but in those we have observed there are generally notable differences: the attacks are usually shorter, the prostration is generally less severe and the sharp margin seen in cases of true erysipelas is lacking. In most of the cases the local symptoms of tinea of the feet are mild. In the patient presented today the reaction around the site of the leg inoculated with trichophytin was identical in appearance with the erysipelous lesion on the dorsum of the foot; this, in my opinion, is conclusive evidence that the erysipelous eruption was a trichophytid. Of course it is possible that in some cases the tinea pedis serves only as a portal of entry for bacterial organisms, but it is my belief that in this case and in many others the whole process—vesicles in the feet, erysipelous eruption on the legs, enlargement of and pain in the inguinal glands—is due to a single mycotic organism and its toxins.

In addition to the already well known epidermal trichophytids, other forms have been noted: scarlatiniform exanthems and enanthems, erythrodermas, erythema nodosum-like lesions, migrating phlebitis and urticaria. We have observed also several cases of elephantiasis trichophytid in which one leg was enlarged from 2 to 2½ inches in circumference. The changes in this last variety may be either vascular or lymphatic.

There can be no question that fungi can produce an erysipelas-like eruption. We first called attention to this in our paper read at the ninth international congress at Budapest in 1935.⁷ In all our cases a clinically identifiable dermatophytosis of the feet was present. The diagnosis was confirmed by microscopic demonstration of mycelia; invariably this secondary manifestation appeared only a short distance from the primary focus of fungous infection. Fungicidal remedies applied to the focus on the feet always cleared up the complicating eruption, and it was not necessary to resort to any streptococcus or staphylococcus vaccines. Four of the eight cases gave negative forty-eight hour trichophytin reactions. In two cases the test was not performed, one patient did not return after his first visit and in one case it was positive. In our case 1 the positive reaction to trichophytin in passive transfer tests and the negative reaction to oidiomycin and streptococcus extracts indicated a causal relationship between the eruption and the fungous infection. This was further apparently indicated by the immediate wheal and flare reactions to trichophytin. In most of our cases the dermatophytosis of the feet was very mild and sometimes not even noticed by the patient. Three patients reported that the appearance of the erysipelous eruption was preceded by trauma, such as "a kick in the leg, walking a long distance on hard pavements and standing for a long period of time."

DIFFERENTIATION FROM TRUE ERYSIPELAS

It is sometimes necessary to make a differential diagnosis. The erysipelous "id" is usually found near a focus of fungous infection. The temperature is no guide, for it may be normal or as high as 104 F. There is not the definitely sharp margin or the progressive spreading of the lesion as in true erysipelas. There may be two separately involved areas present at the same time, such as in the two legs, in cases of erysipelas-like "id." The glazed appearance and brawny induration of erysipelas is not characteristic of these cases. Nor are apparent foci of pyogenic infection

found. A history of many and in some cases frequent recurrences is the rule. Constitutional symptoms are comparatively mild and of short duration. Fatalities have not been seen.

SUMMARY

1. This skin manifestation in erysipelas-like dermatophytid complicating dermatophytosis of the feet occurs near a focus of fungous infection and in our cases only in the feet or legs.
2. Fungicidal remedies applied to the focus are sufficient to cure the secondary eruptions without resorting to streptococcus serum, as used in the treatment of true erysipelas.
3. True erysipelas may be differentiated from this type of "id."
4. Trauma such as walking, a long period of standing or a direct blow may possibly initiate the appearance of this eruption.

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RECURRENT ERYSIPELAS-LIKE MANIFESTATIONS OF THE LEGS

THEIR RELATIONSHIP TO FUNGOUS INFECTIONS OF THE FEET

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According to modern concepts, pathogenic microorganisms may produce both systemic and local manifestations of disease by means of various mechanisms. One of these is through the elaboration of toxic products (toxins) that are intrinsically harmful to the tissues of the host. Another mechanism depends on the creation of a state of hypersensitivity to nontoxic, primarily innocuous constituents or products of the invading micro-organisms (bacterial allergens, fungous allergens and the like).

It appears probable today that both of these mechanisms play a part in most infectious diseases. In some diseases (e. g., diphtheria and tetanus) the toxic element undoubtedly predominates. In others (e. g., syphilis, tuberculosis, leprosy and mycotic conditions) the sensitization mechanism is the more important responsible factor. And in still other diseases (e. g., scarlet fever and the pyodermas due to streptococci and to staphylococci) it would appear as though both mechanisms were involved, and to different degrees, varying not only from disease to disease but perhaps even from case to case.

In erysipelas, the streptococcus toxin has always been considered the major responsible agent. While this is undoubtedly correct it is probable that here too sensitization to streptococcus allergens may be of importance. This concept is supported, for example, by the observation of both local and systemic erysipelas-like manifestations occasionally following the injection of foreign proteins or of other nonliving and nontoxic allergens in susceptible individuals. Those who have had some experience with the subcutaneous and particularly with the intracutaneous administration of various allergens (such as trichophytin and tuberculin) have surely

7. Traub, E. F., and Tolmach, J. A.: Dermatophytosis: Deliberations Congressus Dermatologorum Internationalis IX, Budapest, September 1935, pp. 714-719.

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encountered local reactions consisting of sterile, non-toxic, highly inflamed erythema and edema with fairly sharply outlined, advancing, circinate borders and accompanied by sudden fever, chills and malaise—in short, the picture of erysipelas. The first experience with such a reaction is necessarily disturbing until the observer is reassured that these manifestations are due not to any accidental infection but to an allergic reaction to the sterile, nontoxic injected extract.

In view of this it must be recognized that pictures identical with or closely simulating erysipelas may not all be due to the action of *Streptococcus erysipelatis* and its toxins. Thus a doubt must exist as to the etiology of certain erysipelas-like cases, unless the rôle of the streptococcus has been definitely proved.

At dermatologic meetings in the past few years, cases have been reported and demonstrated that resembled recurrent erysipelas and occurred on the lower legs in men suffering from dermatophytosis of the feet.¹ In the presentations and in the discussions, Williams, Traub and one of us stated that these manifestations were not necessarily due to true erysipelas and that another hypothesis might be considered with regard to the pathogenesis and etiology of the disease syndrome presented. This hypothesis suggested that at least some of these cases might be due to the hypersensitivity of the tissues to allergens emanating from the foci of fungus infection on the feet. It was pointed out in support of this hypothesis that these cases presented certain peculiarities in common, notably that the adequate treatment of the dermatophytosis of the feet resulted in the complete disappearance of the erysipelas-like symptoms and also apparently prevented their recurrence. Williams and Traub mentioned that they had observed a series of such cases in which, after successful therapy of the dermatophytosis, there were no recurrences of the formerly frequent erysipelas-like attacks. (In one case of Williams, for example, there had been recurrences at irregular intervals over a period of twenty-one years. Treatment of the dermatophytosis resulted in a cure which is now of over three years' duration.)

Since it is a well known fact that chronic recurrent erysipelatos eruptions not infrequently lead to chronic lymphedema and elephantiasis, it is surely interesting to note that Allen,² in his study of the causes of lymphedema of the extremities, considered five out of fifty-seven cases of inflammatory lymphedema to be due to trichophytosis of the feet.

We here wish to present observations on four cases of recurrent erysipelas-like lesions of the lower legs, associated with dermatophytosis of the feet. We believe that this syndrome is sufficiently common to be of some general medical significance and that our observations in these cases may have practical as well as theoretical interest.

REPORT OF CASES

Three of our cases are here reported for the first time. The fourth case (C. W.) was first presented by Traub³ before the New York Dermatologic Society, and subsequently by Sulzberger^{1c} before the Bronx Dermatologic Society.

1. (a) Traub, E. F.: Dermatophytosis with an Erysipelatous Dermatophytid of Legs, Arch. Dermat. & Syph. 33:196 (Jan.) 1935. (b) Traub, E. F., and Tolmach, J. A.: Dermatophytosis, Deliberationes congressus dermatologorum internationalis, IX, 1, Budapest, September, 1935, p. 714. (c) Sulzberger, M. B.: Erysipelas-like Dermatophytid, Positive Immediate Wheal Reaction with Trichophytin Reagents, Arch. Dermat. & Syph. 33:374 (Feb.) 1935. (d) Traub, E. F.: Dermatophytosis; Erysipelatous Dermatophytid, ibid. 33:924 (May) 1935. 2. Allen, E. V.: Lymphedema of the Extremities, Arch. Int. Med. 54:606 (Oct.) 1934. 3. Traub.^{1a} Traub and Tolmach.^{1b}

CASE 1.—B. B., a white man, aged 45, a salesman, seen at the Skin and Cancer Unit of the New York Post Graduate Medical School and Hospital June 11, 1936, complained of redness and swelling of the left lower leg for the past three days, and of malaise, fever and generalized aches and pains during the same period. He said that for the past four years he would have what he termed an "attack" about once every two months but that in the past six months he had been having the attacks as often as once every two weeks. He stated that the seizures were characterized by the sudden appearance of redness and swelling of the left lower leg, associated with fever, malaise and generalized aches and pains. The fever had been as high as 104 F. in some instances, and the systemic upset with each attack was sufficiently severe and of sufficient duration to confine the patient to his bed for from two to three days. He further stated that he had noticed that, prior to the onset of each attack, he would experience a feeling of heaviness or a sensation of dragging in the left leg.

Intradermal Reactions in Case 1

Test	Immediate Urticarial Wheal Reactions Read at 10 Minutes	Late Tuberculin Type Papular Reaction Read at 48 Hours
a. Normal skin, arm, trichophytin 1:30, 0.05 cc.	++ wheal	0
b. Normal skin, arm, oldiomycin 1:100, 0.05 cc.	± wheal	0
c. Normal skin, arm, tuberculin 1:1,000, 0.05 cc.	0	2+ - 5-cent piece sized erythema and induration
d. Normal skin, right leg, trichophytin 1:30, 0.05 cc.	++ wheal	0
e. Normal skin, right leg, oldiomycin 1:100, 0.05 cc.	± wheal	0
f. Normal skin, right leg, tuberculin 1:1,000, 0.05 cc.	0	4+ hemorrhage and necrosis
g.* Affected skin, left leg, trichophytin 1:30, 0.05 cc.	0	0
h.* Affected skin, left leg, oldiomycin 1:100, 0.05 cc.	0	0
i.* Affected skin, left leg, tuberculin 1:1,000, 0.05 cc.	0	4+
j.† Affected skin, left leg, trichophytin 1:30, 0.05 cc.	++	0
k.† Affected skin, left leg, oldiomycin 1:100, 0.05 cc.	+	0
l. Normal skin, left leg, trichophytin 1:30, 0.05 cc.	++	0
m.† Affected skin, left leg, Strep. haemolyt. vaccine, 0.05 cc.	0	0
n.† Affected skin, left leg, staphylococcus toxoid (Lederle), 1,000 N.U./cc., 0.05 cc.	0	0
o. Normal skin, right leg, Streptococcus haemolyticus	0	0
p. Normal skin, right leg, staphylococcus toxoid	0	+ - 5-cent piece sized erythema

* These tests were done during attack.

† These tests were done in an interval between attacks.

in attack.

These sensations would manifest themselves from six to twelve hours before the onset of the more dramatic symptoms. Incidentally, all his attacks had been confined to the left leg, and the involved area was always the same. The skin involvement began just above the ankle and went about two thirds of the way to the knee, affecting mainly the anterior and anterolateral surfaces. The posterior surfaces had never been involved. The patient stated that for about the same duration as he had experienced the attacks (four years) he had a more or less continuous itching and burning sensation on and between the toes, which had also become more pronounced in the last six months.

The family history was negative.

The past medical history was negative.

On admission to the clinic the patient presented a markedly swollen and reddened left lower leg. The skin over this area was tense, shiny and warm. The affected area began above the ankle and extended about two thirds of the way to the knee and gradually faded into normal skin around the anterolateral aspects of the leg. The toes and the interspaces presented much macerated tissue, with cracks in some of the interspaces.

The general physical examination revealed no abnormalities beyond those described.

The Wassermann and Kahn reactions were negative.

Microscopic examinations of the scrapings from the affected areas between the toes were repeatedly positive for a hyphomycete, with a finding of numerous typical branching mycelia characteristic of a pathogenic fungus. It is perhaps noteworthy that this fungus failed to grow in repeated attempts at culture on suitable mediums.

No streptococcus could be demonstrated extemporaneously or in culture, either from the scrapings between the toes or from the tissue fluid recovered from the leg lesions. The tissue fluid from the leg lesions was also negative for tinea.

Experimental Data.—Both the normal skin and the affected site, during and after an attack, were tested by the intracutaneous injection of 0.05 cc. of the following extracts: trichophytin 1:30, oidiomycin 1:100, old tuberculin (Koch) 1:1,000, vaccine of *Streptococcus haemolyticus* and *staphylococcus toxoid*. The injection sites were observed both for the immediate wheal type of reaction at from ten to twenty minutes after injection, and for the late papular tuberculin type of reaction at forty-eight hours after injection. The results of these tests are set forth in the accompanying table.

The results of these injections demonstrate a marked forty-eight hour type reaction to old tuberculin 1:1,000. This finding is not sufficiently unusual to make it necessary to consider it significant in this case.

The significant manifestations seem to be:

(a) The complete lack of forty-eight hour tuberculin type of reaction to trichophytin, despite the demonstrated presence of pathogenic fungi in the foot lesions.

(b) The strongly positive immediate wheal reaction to trichophytin. This is a finding so unusual in individuals with common fungous disorders who have never received injections of trichophytin that we are inclined to consider it of some as yet inexplicable significance.⁴

Patch tests with undiluted trichophytin and oidiomycin were negative on both the previously affected and the normal skin.

The patient's urticarial wheal reaction to trichophytin was accompanied by specific reagins; i. e., specific Prausnitz-Küstner antibodies to trichophytin were demonstrated in the patient's serum. This result may be considered of significance since Prausnitz-Küstner reagins to trichophytin are a most uncommon finding in patients with uncomplicated forms of fungous infection.⁴

Therapy.—Treatment was begun at the time of the first presentation, June 11, and during an acute attack. It consisted of local treatment of the dermatophytosis of the feet, in the form of potassium permanganate soaks, followed by topical applications first of gentian violet and then of Castellani's basic fuchsin tincture.

In addition to the local treatment, we inaugurated immunologic treatment by means of repeated injections of trichophytin, both intracutaneously and subcutaneously, July 23. To date the patient has received more than twenty intracutaneous and more than twenty subcutaneous injections.

Course.—Between June 11 and July 21 we observed four typical erysipelas-like attacks. The first was the one presented at the time the patient was first seen, June 11. This attack subsided within two days. Subsequent similar attacks appeared June 20, July 9 and July 21.

As stated, trichophytin desensitization was begun July 23, and since that date there have been no further attacks. This is the longest period of freedom from attacks experienced by the patient since the beginning of his complaint four years ago.

The skin reaction to trichophytin at the time of the last intracutaneous test, November 20, remained unchanged. The immediate wheal reaction was still present in approximately its original intensity, and there was no late, forty-eight hour, tuberculin type, papular reaction. (One of us⁵ has had frequent occasion to point out the fact that, as a rule, the immediate

wheel type of skin sensitivity cannot be materially reduced by repeated injections, whereas the late tuberculin type of skin response can be regularly diminished by repeated intracutaneous injections of the specific allergens.)

CASE 2.⁶—E. C. H., a white man, aged 44, seen in the private practice of one of us, on April 15, 1935, complained of pain, tenderness and swelling of the left lower leg for the past week. The attack had begun with an oral temperature of 101 F. and had been accompanied by malaise and general symptoms. The patient stated that for the past eleven years he had been suffering from recurrent attacks of a similar nature. The seizure preceding the present one had occurred two months previously and was inaugurated by a chill and temperature of 103. The patient had been confined to a hospital for three weeks during his last attack. The local manifestations had always been confined to the lower anterior portions of the left leg.

On examination there was a more than palm sized, bluish red edematous swelling of the anterior portion of the lower left leg. The involved area faded gradually into the normal surrounding skin. There was tenderness, but the skin surface of the bluish red swelling was of approximately the same temperature as that of the surrounding normal skin. The consistency was firm and elastic.

The left foot exhibited considerable maceration and scaling of the sole and some maceration and several deep fissures between the third, fourth and fifth toes.

The right foot presented less marked evidence of eczematous dermatophytosis, with slight scaliness of the sole and of the interdigital webs.

Extemporaneous microscopic examination of scales from the left foot was positive for tinea, revealing numerous branching mycelia.

Experimental Data.—No cultural studies for fungi or streptococci were made. Intracutaneous skin tests with trichophytin and oidiomycin revealed a moderate immediate wheal and flare reaction to trichophytin and none to oidiomycin.

The late, forty-eight hour, tuberculin type reaction to trichophytin was moderately strong, while the late reaction to oidiomycin was pronounced.

No attempt was made to demonstrate Prausnitz-Küstner reagins in this case.

Therapy.—The dermatophytosis of the feet yielded to topical applications, and the leg lesion subsided rapidly.

Under prophylactic dermatologic measures (nightly soaks with 0.5 per cent sodium thiosulfate solution and the application of a mild antiparasitic ointment) the feet have been kept free from lesions. There has been no recurrence of the erysipelas-like attacks. The period of observation was one year and seven months.

CASE 3.⁷—S. N., a white man, aged 40, first seen in office practice, Nov. 3, 1936, had been confined to bed for the last few days because of a painful swelling of the dorsum of the left foot. The attack had been initiated by headache, malaise, chills and a sharp rise in temperature to 103 F. There was a history of numerous preceding attacks of similar nature and in the same site, about once a year for eight or nine years, and a history of "athlete's foot" of many years' duration and preceding the erysipelas-like attacks.

On examination there was a fairly sharply circumscribed erythematous swelling of all the toes and of the dorsum of the left foot; there was a lymphangitic strand on the lower part of the left leg and a palpable tender lymph gland in the left inguinal area. The interdigital spaces presented maceration and there was a typical papulovesicular dermatophytosis of both soles. The third and fourth interspaces on the left foot were the site of deep fissures.

Under local treatment (soaks with 0.5 per cent aqueous solution of silver nitrate and application of boric acid ointment) the systemic manifestations, the leg lesions and the dermatophytosis rapidly subsided. There was a residual chronic lymphedema of the anterodorsal portion of the left foot and of the dorsa of the toes. On the toes and at the proximal ends of the interspaces there were numerous elevated papillomatous warty excrescences, such as are often found in elephantiasis of the extremities.

6. This case was referred by Dr. DeWitt Stetten of New York.

7. This case was referred by Dr. Edgar Mayer of New York.

4. This subject is discussed further by:
Sulzberger, M. B., and Kerr, Phyllis: Trichophytin Hypersensitiveness of Urticarial Type, with Circulating Antibodies and Passive Transference, *J. Allergy* 2: 11 (Nov.) 1930.
Wise, Fred and Sulzberger, M. B.: Urticaria and Hay Fever Due to Trichophytin (Epidermophyton Interdigitale), *J. A. M. A.* 95: 1504 (Nov. 15) 1930.
Sulzberger, M. B.: Experiments in Passive Transference of Urticarial Hypersensitiveness to Fungous Extracts, *J. Immunol.* 23: 73 (July) 1932.
Tomlinson, W. J.: Trichophytin Hypersensitiveness: Report of a Case with an Immediate or Reaginic Type of Reaction, *J. Allergy* 6: 573 (Sept.) 1935.
5. Sulzberger, M. B.: Allergy in Dermatology, *J. Allergy* 7: 385 (May) 1936.

Cultures taken from the interdigital fissures on the day of the first examination showed *Streptococcus haemolyticus* and *Staphylococcus aureus*. Unfortunately, no mycologic, microscopic or cultural study was made.

The intracutaneous skin tests with trichophytin and oidiomycin revealed a slight immediate wheal and flare reaction to trichophytin and no reaction to oidiomycin.

At forty-eight hours the tuberculin-type papular reaction to trichophytin was scarcely visible, while a moderate to marked reaction was present at the oidiomycin site.

In this case no reagins to trichophytin were demonstrable in the blood serum.

Case 4 is not described in detail here because it has already been reported elsewhere⁸ and forms the first case of a report by Traub and Tolmach.⁹

CASE 4.¹⁰—C. W., a white man, aged 52, seen in the service of Dr. C. M. Williams at the Skin and Cancer Hospital, complained of recurrent erythematous swellings of the anterior portion, sometimes on the right and sometimes on the lower part of the left leg, with considerable local heat, pain and tenderness. There was typical mycotic scaling and maceration of the interspaces of both feet, from which fungus mycelia were repeatedly demonstrated on microscopic examination but failed to grow despite many inoculations on suitable mediums.

Intracutaneous skin tests with trichophytin, oidiomycin and vaccines of staphylococci and streptococci yielded a large immediate wheal and flare reaction solely to the trichophytin and no immediate reactions to the other extracts.

In contrast to the large immediate wheal response, the forty-eight hour tuberculin type reaction to trichophytin was completely negative!

One of us, in immunologic studies of this case, carried out for Drs. Traub and Williams, showed that the intracutaneous injection of 0.1 cc. of trichophytin, when performed on the lower leg, produced not only a wheal and flare up but also an almost palm-sized, hot, erythematous swelling, exactly duplicating the clinical lesion from which the patient suffered. On the other hand, injections of trichophytin in the skin of parts of the body other than the lower leg, and injections of other fungous and bacterial extracts in any skin area did not result in reactions simulating the spontaneous clinical lesions.

Extensive Prausnitz-Küstner experiments were carried out with the serum of this patient. There were no demonstrable reagins to vaccines of streptococci, staphylococci or monilias but a high titer of reagins to trichophytin was repeatedly demonstrable.

The tinea of the feet yielded to classic dermatologic treatment, and to date there have been no recurrences of the erysipelas-like attacks.

COMMENT

The picture of recurrent erysipelas-like attacks of the lower legs is not uncommon, and the association of this syndrome with dermatophytosis has been mentioned by various observers. In addition to cases reported by Traub,¹ Williams and others in the more recent literature.¹ McGlasson,¹¹ for example, in 1926 devoted an article to the subject of recurrent erysipelas of the legs and dermatitis of the feet. In McGlasson's report of sixteen cases it was assumed that dermatitis of the feet opened portals of entry for the etiologic agent (*streptococcus*) and that the attacks were those of true recurrent erysipelas. In the later literature the attacks have been regarded as possibly due to a sensitivity to fungi and their products, emanating from the foci of mycotic infection on the feet. It seems to us that both these hypotheses are still distinctly tenable but that certain older experimental and clinical data, and particularly several observations in our present cases, speak rather in favor of the latter assumption.

The sum of these observations seems to lend support to the idea that at least some of these cases are erysipelas-like dermatophytids. In the first place, the older animal experiments of Jadassohn¹² and of one of the present authors¹³ have demonstrated the rapid passage of fungous elements from primary foci; secondly, the observations of Jadassohn and Peck¹⁴ and of Peck¹⁵ have shown that, in human beings with dermatophytosis, irritation of foci on the feet produces an absorption and dissemination of the fungous allergens. It is further noteworthy that "ids" of the lower legs in the form of sudden painful swellings (erythema nodosum-like ids) and of lymphangitis and lymphadenitis have previously been described.¹⁶ In one case,¹⁷ fungi were demonstrated even in the inguinal lymph glands.

It is therefore by no means to be excluded that the recurrent painful swellings of the legs in our cases may be due to fungous allergens; and it is, of course, well known that many trichophytids produce general symptoms with sudden fever, malaise, prostration and even generalized glandular swellings and enlargement of the spleen (the systemic disease properly called trichophytosis¹⁸).

Those manifestations in several of our cases, which seem to speak rather for the dermatophytid nature of the erysipelas-like syndrome, are, above all, the demonstrated alterations in their immunologic response to trichophytin. The negative trichophytin reaction at forty-eight hours, seen in cases 1, 3 and 4, is not entirely unknown but is surely exceptional in cases in which fungi have been demonstrated in lesions of the foot. The same statement applies with at least equal force to the moderate to strong immediate wheal reaction to trichophytin, as exhibited by all four of our cases, and to the finding of Prausnitz-Küstner reagins to trichophytin, which were demonstrable in cases 1 and 4. All these observations certainly evidence an atypical immunologic response to the fungous infection and to the fungous allergens. Moreover, it is possible that the failure of the microscopically demonstrated fungi to grow on culture mediums, as seen in cases 1 and 4, may also be due to the influences of a peculiar immunologic state; for example, to the possible presence of growth inhibiting antibodies.¹⁹

Further observations that suggest the mycotic and possible "id" nature of the syndrome in our cases are: (a) the absence of streptococci on culture (case 1); (b) the local exact reproduction of the clinical lesion by means of a specific intracutaneous injection of trichophytin in the skin of the lower leg, and the failure to produce such an erysipelas-like response with trichophytin in distant, nonsensitive skin areas, as well as the failure to produce nonspecific erysipelas-like responses with extracts of various other microorganisms, such as monilia, streptococci and staphylococci⁹ (Traub and Tolmach's case, i. e., our case 4); (c) the apparent prophylactic effect of specific immunologic procedures in the form of trichophytin injections

12. Jadassohn, W.: Beitrag zur Genese der Allergie bei den Impfykosen, *Arch. f. Dermat. u. Syph.* 153: 476, 1927.

13. Sulzberger, M. B.: The Pathogenesis of Trichophytids, *Arch. Dermat. & Syph.* 18: 891 (Dec.) 1928.

14. Jadassohn, W., and Peck, S. M.: Epidermophytide der Hände, *Arch. f. Dermat. u. Syph.* 158: 16, 1929.

15. Peck, S. M.: Epidermophytosis of the Feet and Epidermophytids of the Hands, *Arch. Dermat. & Syph.* 22: 49 (July) 1930.

16. Bloch, Bruno: Die Trichophytide, in Jadassohn's *Handbuch*, Berlin, Julius Springer, 14: 583, 1926.

17. Sütter, E.: Zur Kenntniss der Trichophytide, *Arch. f. Dermat. u. Syph.* 127: 135, 1920.

18. Jevner, M., and Hoffmann, H.: Der Einfluss des Serum's Allergischer auf Trichophytonpilze, *Arch. f. Dermat. u. Syph.* 115: 167, 1924.

19. Ayres, Samuel, Jr., and Anderson, N. P.: Inhibition of Fungal Cultures by Blood Serum from Patients with Phytid Eruptions, *Arch. Dermat. & Syph.* 29: 537 (April) 1934.

8. Traub,¹¹ Traub and Tolmach,¹⁰ Sulzberger.¹³
9. Traub, E. F., and Tolmach, J. A.: An Erysipelas-like Eruption Complicating Dermatophytosis, *J. A. M. A.*, this issue, p. 2187.
10. Drs. C. M. Williams and Eugene F. Traub gave us permission to include this case.
11. McGlasson, L. L.: Recurrent Erysipelas of the Legs with Dermatitis of the Feet, *Arch. Dermat. & Syph.* 14: 679 (Dec.) 1926.

(case 1), and (d) to a certain degree, at least, the cessation of erysipelas-like attacks when the dermatophytosis of the feet was kept under control.

All these facts suggest that the erysipelas-like syndrome could be considered a dermatophytid in the form of a local allergic cellulitis and lymphangitis and of a systemic allergic response to fungous products emanating from the dermatophytosis of the feet.

However, it must be borne in mind that, at least in some cases, a fortuitous combination of erysipelas and dermatophytosis may occur, while in others the dermatophytosis may open the portals for the entrance of the streptococcus of erysipelas; in still others the syndrome may be produced by fungi alone or by fungi in combination with streptococci or even by some still unknown other mechanism. It seems to us that our case 3 is one in which the dermatophytosis may have prepared the way for the entrance of the streptococcus, while in cases 1, 2 and 4 no evidence incriminating a streptococcus could be brought forward.

In summing up, we believe that it must remain the problem of future studies to decide as to the exact etiology and pathogenesis of each individual case of the type here under discussion and that it will be essential in the future to demonstrate the presence of *Streptococcus erysipelas* in lesions of the leg before it can be concluded that such erysipelas-like syndromes of the lower legs are necessarily true erysipelas.

While our observations only lend additional support to the concept of the existence of erysipelas-like dermatophytids of the lower legs, they seem to prove conclusively a point which is, in itself, not without practical significance; i. e., that, as previously emphasized by Williams,¹⁰ proper and adequate dermatologic management of the existing dermatophytosis of the feet and prevention of its exacerbations will tend to prevent the recurrences of erysipelas-like attacks of the lower legs. Moreover, in consideration of the results in our case 1, it is possible that immunologic treatment with repeated injections of trichophytin may be of some influence in the prophylaxis of the erysipelas-like reactions.

SUMMARY AND CONCLUSIONS

1. The occurrence of erysipelas-like attacks on the lower legs, associated with active dermatophytosis of the feet, is not uncommon.

2. Some of these cases may be recurrent erysipelas-like dermatophytids of the lower legs and not true erysipelas.

3. These cases are likely to present aberrant immunologic responses to trichophytin in the form of (a) positive immediate wheal responses to intracutaneous injections, (b) a negative or weak forty-eight hour tuberculin type of reaction, and (c) the presence of Prausnitz-Küstner reagins to trichophytin. These immunologic peculiarities and the reproduction of the clinical lesion by means of a trichophytin injection (in one case) are regarded as lending support to the hypothesis of the dermatophytid nature of the erysipelas-like syndrome here presented.

4. Whatever the pathogenesis and etiology of the erysipelas-like attacks (whether they are due to streptococci, to fungi, to their combination or to other unrelated agents and factors), the proper and adequate dermatologic treatment of the mycotic disorder of the feet seems to offer an excellent means of preventing recurrences of the erysipelas-like syndrome of the legs.

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19. Traub (footnotes 1a and 1d).

DINITROPHENOL AND DESICCATED THYROID IN THE TREATMENT OF OBESITY

A COMPREHENSIVE CLINICAL AND LABORATORY STUDY

SAMUEL SIMKINS, M.D.

PHILADELPHIA

(Concluded from page 2117)

SKIN REACTIONS

The most common toxic action observed with dinitrophenol is a skin rash.⁸¹ The incidence reported varies from 15 per cent⁸² to 23.4 per cent.⁸³ There is no way of predicting sensitivity to the drug. The Derrien test is now known to be of no value in this respect.⁸³ Skin tests are of no value; neither the direct test (patch test, scratch test, intradermal wheal test) nor the indirect or passive transfer test (Prausnitz-Küstner test).⁸⁴

In the present series there was a total of thirty-two patients who showed skin reactions. Of these, a few developed more than one type of skin lesion.

1. Simple pruritus occurred in four patients. It disappeared in three without the medication being discontinued. In the fourth (a patient with vasomotor rhinitis) the dinitrophenol was resumed safely, shortly thereafter. Of the four patients, one had hay fever and one vasomotor rhinitis. One reaction occurred in the fourth week, one in the seventh week, and two in the seventeenth week of continuous dinitrophenol medication.

2. Macular rashes developed in three patients, all within two weeks after the institution of dinitrophenol therapy. In all patients the dinitrophenol was continued, and the rash disappeared spontaneously within three days.

3. Papular and maculopapular rashes developed in twelve patients. One was allergic to many foods and had severe migraine at the time of her menses; another suffered from migraine. The rash was usually papular and developed in the second to the eighth week, persisting from one to five days. Three of the rashes were barely pruritic; nine varied greatly in the degree of pruritus. In two patients the rash appeared twice, several weeks apart. In all twelve patients the rash disappeared spontaneously as the medication was continued.

4. In four patients there was marked swelling and redness of the hands and feet. The time of onset varied greatly. In one it developed after the ingestion of only four 100 mg. capsules. After the lapse of one day, medication was resumed without recurrence of the rash. Another developed marked manifestations in the second week and was able to resume medication after a short lapse. A third patient developed the reaction after three and one-half months of medication. The catholicity of skin reactions to dinitrophenol is well illustrated by this

81. Beebe, N. L.: *Colorado Med.* 32:30 (Jan.) 1935. Dintenfuss, Henry: An Ear Complication from Dinitrophenol Medication, *J. A. M. A.* 102:838 (March 17) 1934. Frumess, G. M.: Allergic Reaction to Dinitrophenol, *ibid.* 102:1219 (April 14) 1934. Quick, A. J.: Dangerous Drug Reactions, *ibid.* 102:1419 (April 28) 1934. Nadler, J. E.: Peripheral Neuritis Caused by Prolonged Use of Dinitrophenol, *ibid.* 105:12 (July 6) 1935. Faddersbøll, H.: *Nord. med. tidsskr.* 8:1088 (Aug. 25) 1934. Gimsing, T.: *Ugesk. f. Læger* 96:527 (May 17) 1934. Noun.⁸² Markowitz.⁸³ Anderson, Reed and Emerson.⁸⁴ Jackson and Duval.⁸⁵ Strang and Evans.⁸⁶ Tainter, Stockton and Cutting.⁸⁷ Beinhauer.⁸⁸

82. Markowitz, J.: *Bull. Acad. Med., Toronto* 8:72 (Jan.) 1935.

83. McGavack, T. H.: *California & West. Med.* 44:77 (Feb.) 1936.

84. Matzger, Edward: Can Sensitivity to Dinitrophenol Be Determined by Skin Tests? *J. A. M. A.* 103:253 (July 28) 1934.

patient, a woman of 28, who developed four types of reactions during an intensive course of dinitrophenol in therapeutic dosage. A generalized pruritic, papular eruption appeared on the fourth day of medication and disappeared spontaneously after a few days. At three and one-half months she developed marked redness and swelling of the hands and feet, which disappeared as soon as the dinitrophenol was omitted. The medication was resumed safely within a few days. A month later there occurred itching of the neck together with redness of the skin, which persisted one week. At five and one-half months she developed several large, painful subcutaneous nodules that disappeared spontaneously after a few days. The fourth patient had tabes and developed urticaria in the fifth week. Two days after the drug was stopped the urticaria disappeared, and the hands and feet became red and swollen. Soreness and tenderness of the hands and feet persisted eleven days after the drug was discontinued.

5. Urticaria occurred in ten patients. In five the rash was generalized; in the remainder the rash was scattered and limited chiefly to the extremities or to the buttocks and chest. Of the first five patients, one suffered an extremely violent febrile reaction, which will be described later; the other four were afebrile. All five rashes developed within the first ten days of medication. Summing up the ten cases, two were continued on the dinitrophenol, even when urticaria had developed, without mishap. Four patients, who had developed urticaria, were shortly afterward given the drug again without recurrence of the rash. Another patient developed prompt recurrence of the urticaria when medication was resumed. The other three patients in the series did not have the drug repeated. Of the ten patients one, who had a few scattered hives during the second week of medication, eventually developed cataracts.

In the series of thirty-two patients who developed skin rashes, there were twenty-nine nonallergic and three allergic (one vasomotor rhinitis, and two allergic to various foods). Of these three, one had migraine. Two others of the thirty-two had migraine. Contrast these figures with the number of allergic patients in the entire series. Of a total of 159 patients, fourteen were allergic (three with hay fever, ten with a history of former urticaria, and one with vasomotor rhinitis), as well as six with migraine. Of the fourteen, only three developed skin manifestations (one pruritus, one maculopapular rash and one urticaria). These results support Matzger's⁸⁴ conclusion that dinitrophenol reactions are not allergic in character.

6. In the tenth week of dinitrophenol therapy one patient developed an eruption remarkably simulating pityriasis rosea. The rash disappeared in ten days, without interdiction of the drug.

The incidence of skin reactions was rather high (thirty-two cases in 159, or 20.1 per cent), which compares with McGavack's⁸⁵ figures of 23.4 per cent.

ALOPECIA

One patient developed alopecia. A search of the literature discloses no other case report. Hitch and Schwartz⁸⁶ have recently reported an exfoliative dermatitis following dinitrophenol therapy, in which a certain degree of alopecia was present:

Mrs. M. C., aged 47, white, who weighed 231 pounds (105 Kg.), took an average of five 100 mg. capsules of sodium

dinitrophenol daily between April 5, 1935, and June 21, 1935, with a resultant loss in weight of 32 pounds (14.5 Kg.) and no apparent ill effects. Medication was resumed with three capsules daily on Aug. 30, 1935, at which time she weighed 201 pounds (91 Kg.). September 5 she began to complain of persistent pain in one arm, which grew steadily worse. At that time she noticed that her hair was falling out slightly. September 20 (at which time the dose was four capsules daily) she developed marked edema of the ankles. This condition continued until November 11, when the drug was discontinued. The alopecia became progressively worse. Local treatment for six weeks was of no avail. There was marked scaling and redness of the scalp together with the development of numerous small ulcers. The hair fell out, in clumps, in scattered areas throughout the scalp. The alopecia continued for two months, and then the condition of the scalp began to improve. The hair is gradually growing in, and the scalp is beginning to approach normality in its appearance.

URTICARIA

C. C., a white woman, aged 23, who weighed 130 pounds (59 Kg.), took an average of $4\frac{1}{2}$ grains (0.3 Gm.) of sodium dinitrophenol daily between Jan. 22 and March 16, 1935, with no apparent ill effects. The weight loss was slight (5 pounds, 2.3 Kg.). May 6 she resumed medication with the same dosage. On May 12 itching of the thighs developed. The next morning generalized urticaria appeared. The patient felt drowsy and vomited. Epinephrine hydrochloride, 5 minims (0.3 cc.) by hypodermic injection, gave prompt but only temporary relief. May 14, tremendous urticarial lesions appeared, especially involving the wrists and ankles. The hands and feet were immensely swollen and intensely hot and red. Practically the entire body was covered with large wheals. The temperature was 100 F., the pulse 112, the respiration 28, and the blood pressure 112 systolic, 64 diastolic. Examination otherwise was negative. Epinephrine again gave prompt relief. Ephedrine and calcium by mouth were prescribed. The next day the urticaria decreased somewhat. As old lesions disappeared, new ones developed. The temperature and respiration were now normal, but the pulse remained rapid (112). By May 16, nearly all the lesions were gone. New lesions cropped up intermittently for three weeks thereafter, though they were so scattered as to cause very little discomfort.

PERIPHERAL NEURITIS

It is only recently that the rôle of dinitrophenol in the causation of peripheral neuritis has been noted.⁸⁶ The striking symptoms are practically always sensory, the legs and feet being affected first, the arms and hands next. Various paresthesias, such as numbness and "pins and needles," develop and after the drug is stopped clear up slowly, within three weeks to two months. Cases of motor weakness, such as foot drop, are rare.⁸⁷ The weakness disappears rapidly after the drug is stopped, usually within a week. After the recovery period, the medication may usually be resumed at a lower dosage level without further symptoms.⁸¹ In the author's series there were only four frank cases of peripheral neuritis. The symptoms developed very gradually in all, and only after prolonged medication (from the fourth to the tenth week). The condition persisted for weeks and gradually cleared up after the medication was discontinued.

A very interesting feature is the development, in a few patients, of disturbances of the sensation of taste, or dysgeusia.⁸⁸ Five patients developed loss of taste, especially for salt, sweet, sour and the like, as well as numbness and tingling of the tongue, usually within the

⁸⁵ Hitch, J. M., and Schwartz, W. F.: Late Toxic Results, Including Dermatitis Exfoliativa, from "Slim," J. A. M. A. 106:2130 (June 20) 1936.

⁸⁶ van Bogaert, M. L.: Bull. et mém. Soc. méd. d. hôp. de Paris 51: 1393 (Oct. 28) 1935. MacBryde, C. M.: J. Missouri M. A. 32:97 (March) 1936. de Châtel and Motika.⁸⁷ Nadler.⁸⁸ Tainter, Stockton and Cutting.⁸⁹ Cogan.⁹⁰ Hitch and Schwartz.⁹¹ Epstein and Rosenblum.⁹² Hunt, W. D.: Northwest. Med. 32: 209 (June) 1934. Tainter, Stockton and Cutting.⁹³
⁸⁷ Epstein, Ervin, and Rosenblum, Harold: J. Lab. & Clin. Med. 20:118 (Aug.) 1935. van Bogaert.⁸⁸ de Châtel and Motika.⁸⁹ Nadler.⁹⁰ Tainter, Stockton and Cutting.⁹¹ Jackson and Duvall.⁹² Hart.⁹³

fifth to the seventh week. In no case was the drug interdicted. In one patient the loss of taste lasted only two days, in another five days; in the other three patients it persisted several weeks, disappearing spontaneously even though the drug was continued.

BLOOD CHANGES

In view of the close chemical relationship of dinitrophenol to benzene, cases of diffuse bone marrow depression following dinitrophenol therapy might be expected a priori. The common factor in dinitrophenol, aminopyrine, arsphenamine, benzene and so on, is the benzene ring. In animal experiments no apparent changes in red or white blood cells have been noted even when massive doses of dinitrophenol were given over periods as long as six months.⁸⁹ The first case of granulopenia following dinitrophenol administration was reported in 1934.⁹⁰ Since that time, seven similar cases have been reported,⁹¹ of which two proved fatal.⁹² In every one the dosage was nontoxic. Tainter, Cutting and Stockton⁴³ found no alteration in the fragility of the red cells. One case of urticaria presented petechiae of the legs and feet.⁹³ In a series of 170 patients no agranulocytosis developed.⁹⁴ In the present series no clinical cases of agranulocytosis developed. Eleven patients were studied carefully with repeated, complete blood counts during prolonged courses of dinitrophenol medication, without any significant changes being noted. Hence one must agree with Tainter and his colleagues³⁴ in their conclusion that dinitrophenol does not affect the blood cells except in rare instances of "some preexisting idiosyncrasy or defective constitution in the individual patient, in whom dinitrophenol or any other drug or toxin may act as a precipitating agent."

MENSTRUAL EDEMA

A subject of intrinsic interest that has not received the attention it merits is menstrual edema. Thomas⁹⁴ described two cases of extensive, generalized edema occurring only at the time of the menses. Such a phenomenon is not limited to women with clinically recognizable gland dysfunction but occurs in varying degree in presumably normal individuals.⁹⁵ The explanation of the phenomenon—the shift in water balance—is not clear. In the present series eighteen women complained of feeling "bloated" shortly before or during their menses. Of the eighteen, only six gained weight at the time of the catamenia. In the entire series a total of fourteen gained weight at the time of the menses. Ten were given dinitrophenol exclusively, and four 2 grains (0.13 Gm.) of desiccated thyroid daily in addition to the dinitrophenol. The gain in weight was variable, ranging from 2 to 5 pounds (0.9 to 2.3 Kg.). After the menses were over, the increment in weight was usually lost rapidly.

89. Tainter, M. L.; Bergstrom, F. W., and Cutting, W. C.: J. Pharmacol. & Exper. Therap. **53**: 58 (Jan.) 1935. Emge, L. A.; Wulff, L. M. R., and Tainter, M. L.: Proc. Soc. Exper. Biol. & Med. **31**: 152 (Nov.) 1933. Hall, V. E.; Brown, C. A., and Sahyun, M., *ibid.* **31**: 380 (Dec.) 1933. Hall, Field, Sahyun, Cutting and Tainter.¹¹ Tainter, Boyes and De Eds.⁶² Tainter, Cutting, Wood and Proeschler.⁴⁴ Tainter and Cutting.¹² Tainter and Cutting.¹⁸ Tainter.³¹ Cutting and Tainter.³¹ Muntwyler.¹⁷

90. Hoffman, A. M.; Butt, E. M., and Hickey, N. G.: Neutropenia Following Aminopyrine, J. A. M. A. **102**: 1213 (April 14) 1934.

91. Behn, S. S.: Agranulocytic Angina Following Ingestion of Dinitrophenol, J. A. M. A. **103**: 249 (July 28) 1934. Imberman, S. W., and Imberman, C. P., *ibid.* **106**: 1085 (March 28) 1936. Davidson and Shapiro.⁴⁹ Silver.⁹² Dameshek and Gargill.⁹²

92. Silver, Solomon: A New Danger in Dinitrophenol Therapy, J. A. M. A. **103**: 912 (Sept. 22) 1934. Dameshek, William, and Gargill, S. L.: New England J. Med. **211**: 440 (Sept. 6) 1934.

93. Noun, M. H.: Urticaria, Edema and Purpura Following Small Doses of Dinitrophenol, Arch. Dermat. & Syph. **32**: 288 (Aug.) 1935.

94. Thomas, W. A.: Generalized Edema Occurring Only at the Menstrual Period, J. A. M. A. **101**: 1126 (Oct. 7) 1933.

95. Sweeney, J. S.: Menstrual Edema, J. A. M. A. **103**: 234 (July 28) 1934. Lyon and Dunlop.¹²¹

MENSTRUAL CYCLE

There is a marked, though totally unpredictable, action by dinitrophenol on the menstrual cycle in many women. This effect was noted in fifteen patients. While it is true that "most of the menstrual disorders common in the obese are corrected by proper diet alone,"⁹⁶ the change in menses in many patients is so marked and occurs so soon after the institution of drug therapy (before there has been any significant weight loss) that one must conclude that direct action of the drug is involved. Three patients who had irregular, delayed menses became regular promptly. On the other hand, two whose menses had been perfectly normal became irregular; in one, the catamenia was a week late and scanty; in the other, four days delayed and very profuse. In the latter patient, dysmenorrhea and menstrual headache vanished for the first time in years. In two patients the menses became very scanty, in one very profuse. Four patients began to have early, scanty menses. One patient became totally irregular and one became amenorrheic. In contrast, a young adult, who had been amenorrheic for eighteen months following childbirth, began to menstruate regularly but somewhat scantily.

DINITROPHENOL CATARACTS

The *bête noire* of dinitrophenol therapy is cataracts. It is only slightly more than a year ago that the first reports crept into the literature.⁹⁷ Since that time numerous cases have been reported.⁹⁸ The pathogenesis is obscure.⁹⁹ No case has shown spontaneous resolution. The shortest time reported for the development of cataracts is one month, the longest twenty-one months. The number of cases reported ranges between fifty and a hundred.¹⁰⁰ The actual incidence of cataracts is very difficult to estimate, as there are few reports in the literature of extensive clinical studies of dinitrophenol. Tainter, Stockton and Cutting³⁴ had one case in 170 patients, Hill one in sixty-eight;¹⁰¹ I had one in 159. Horner¹⁰⁰ estimates from 0.1 to 1 per cent. Undoubtedly many cases of recent origin have not been linked to dinitrophenol, and in view of the long latent period before the cataracts become clinically manifest and in view of the extremely widespread usage of the drug both with and without medical supervision, a rapidly increasing number of cataracts may be expected in the near future. An interesting feature, which has received only slight attention, is disclosed by a careful study of almost all cases reported in detail. It consists of the fact that patients who developed cataracts are those who, in nearly all cases, had more than one course of dinitrophenol. It is during the second or subsequent course that dimness of vision begins.

Even now, with the evidence pointing to dinitrophenol as the causative agent of these cataracts, many deny the rôle of the drug. As they point out, during the latter part of the World War many workers in

96. Evans, F. A., and Strang, J. M.: Am. J. M. Sc. **177**: 339 (March) 1929.

97. Boardman, W. W.: Rapidly Developing Cataract After Dinitrophenol, J. A. M. A. **105**: 108 (July 13) 1935. Horner, Jones and Boardman.¹⁰²

98. Shutes, M. H.: Am. J. Ophth. **18**: 752 (Aug.) 1935. Boardman, W. W.: Ann. Int. Med. **9**: 195 (Aug.) 1935. Mann, W. A., Jr.: Cataract Due to Dinitrophenol, Arch. Ophth. **15**: 116 (Jan.) 1936.

Boardman, W. W.: California & West. Med. **43**: 118 (Aug.) 1935. Lazar, N. K.: Cataract Following the Use of Dinitrophenol, J. A. M. A. **105**: 794 (Sept. 7) 1935. Kniskern, P. W.: Cataract Following Dinitrophenol, *ibid.* **105**: 794 (Sept. 7) 1935. Cogan, D. G., and Cogan, F. C.: New England J. Med. **213**: 854 (Oct. 31) 1935. Koch, Lee and Tainter.³⁹ Cogan.⁴⁰ Hill.¹⁰¹

99. Differential Diagnosis of Cataract Due to Dinitrophenol, J. A. M. A. **107**: 60 (July 4) 1936. Fuchs: Ophthalmology, ed. 7, Philadelphia, J. B. Lippincott Company, p. 639. Cogan.⁴⁰

100. Horner, W. D.: Cataract Following Dinitrophenol Treatment for Obesity, Arch. Ophth. **16**: 447 (Sept.) 1936.

101. Hill, H. E.: J. Indiana M. A. **29**: 67 (Feb.) 1936.

French munition plants showed toxic symptoms, but there are no records of any cataracts. Moreover, in recent work Horner¹⁰² has found cases in which similar cataracts have occurred without the ingestion of dinitrophenol. "Dinitrophenol can scarcely be the essential factor when identical changes are seen in those who have never taken the drug."

Horner, Jones and Boardman¹⁰³ reported one case in which there was transient blurring of vision, which disappeared after a few doses. Bilateral, faint, lenticular opacities were discovered, which did not progress. In the present series, three patients developed intermittent blurring of vision at the beginning of dinitrophenol therapy, which disappeared spontaneously after a few days. To date (fifteen months, seventeen months and twenty-two months after the institution of therapy) no lenticular changes have appeared.

Vitamin C is present in the normal lens in high amounts.¹⁰⁴ With age and cataract formation, the vitamin C diminishes and may become absent.¹⁰⁵ The drop in vitamin C parallels the drop in glutathione content and the drop in its oxidation activity. "The vitamin C content of organs depends on the amount of ascorbic acid fed and decreases as the metabolic rate of the tissue is increased."¹⁰⁶ The metabolic rate of organs is increased by the administration of thyroid extract, and alpha-dinitrophenol. The value of vitamin C may be presumed to lie in the maintenance of a clear lens. Consequently, increased permeability of the capsule¹⁰⁷ may result in lessened vitamin C content of the aqueous and thus predispose to cataract formation. In naphthalene poisoning (cataracts) there is a marked decrease in vitamin C concentration of the lens and aqueous, possibly because of increased permeability of the capsule.¹⁰⁸ Intravenous injection of vitamin C in animals gave conflicting and inconclusive results.¹⁰⁹ In his preliminary report, Josephson¹¹⁰ gave results of treatment of cataract cases with vitamin C. His treatment employed the intravenous use of vitamin C, in part at least. He reported that the swelling of the lens capsule was reduced and that the lens became more transparent.

DINITROPHENOL CATARACTS

Mrs. M. C., aged 48, was given sodium dinitrophenol, in an average dose of from 300 to 400 mg. daily from July 27 to Oct. 8, 1934, with a loss of weight from 157 pounds (71 Kg.) to 144 pounds (65 Kg.). From Oct. 8, 1934, to March 26, 1935, the drug was discontinued. By this time her weight had regressed to 153 pounds (69 Kg.). Sodium dinitrophenol was again given, in the same dosage, until April 29, 1935, when her weight was 145 pounds (66 Kg.). At that time there were no visual complaints. The drug was then discontinued. Aug. 3, 1935, while bathing at a seaside resort, she became cold and complained of marked chilliness. Within a few minutes, huge urticarial wheals covered the entire body with the exception of the face. The urticaria disappeared within an hour. Three hours later she developed diplopia when she closed her left eye. The condition became gradually worse until September 4, when an ophthalmologist discovered bilateral cataracts. Shortly afterward, dimness of vision began to develop and grew rapidly worse during December. The diplopia (right eye) persisted until vision was completely lost at the end of December 1935.

Dr. O. F. Merston reported that examination, Sept. 4, 1935, showed the eyes externally entirely normal. Muscle balance was normal for distance and near. The pupils were round, central, and equal, and reacted to light and in accommodation. The vision of each eye was 6/9. Both lenses showed numerous fine white flaky deposits, resembling naphthalene, scattered throughout the cortical substance, the area immediately beneath the capsule being clear. The right eye was more affected than the left. The eyegrounds and vessels were normal. In six weeks there was an increased myopia of 1.50 diopters. The flakes were more pronounced. Vision of each eye was 6/9—1. Four weeks later the vision of the right eye was 6/30 and of the left eye 6/12½. No view of the backgrounds was possible. The right lens was a beautiful pearly white color and the flakes in the left eye were much more confluent. Two weeks later the right was matured and the left vision 3/60. There was still a narrow clear area immediately beneath the capsule. Treatment was of no avail. Dr. Luther C. Peter operated on the right eye Dec. 30, 1935, and the patient now has 6/6—vision in the eye. The left eye has not been operated on. Reexamination of the right eye following cataract extraction showed no retinal lesion.

By Feb. 22, 1936, the left cataract was mature. Only slight light perception was left. The whole lens was now pearly white as the right lens had been and was ready for extraction. On the basis of experimental work already described, I decided to try the effect of large doses of vitamin C on the cataract. Beginning May 18 the patient began to drink 40 ounces of orange juice¹¹¹ daily and has continued thus since. Within twelve days perception of light became so sharp as to be annoying. June 26, additional vitamin C therapy was instituted in the form of crystalline vitamin C¹¹² (ten 50 mg. tablets daily). By July 4 the shiny hard pearliness of the left pupil had become much less marked. The dosage of the tablets was steadily increased until at present (October 1936) she is taking twenty-five 50 mg. tablets (1.25 Gm.) daily in addition to 40 ounces of orange juice daily (about 0.40 Gm. of vitamin C).

There has been a slow, but steady, improvement in both vision and the appearance of the pupil. The patient can now distinguish various colors and the blurred outlines of large objects. The pupil, which originally had a shiny pearl-like hardness, has now lost this appearance and seems to be semitranslucent. When dilated, the periphery of the pupil appears normal. To gross examination the cataract now appears variable in density, being roughly irregular in the temporal portion and much paler there. Slit lamp examination discloses that the anterior cortex, up to the nucleus of the lens, is transparent. The appearance of the lens otherwise is unchanged. There can be no doubt that definite improvement in this cataract has occurred. What the ultimate outcome will be is, of course, problematic as yet. The future course of this patient will be reported at a later date.

TOXIC REACTIONS

Special types of toxic reactions are described in their proper sections. There are certain types of reactions that have not received their proper attention in the literature. Four patients complained of marked languor and weakness. Of the four, one was a patient with hyperinsulinism whose blood sugar dropped below the premedication levels. Three patients felt drowsy and presented a "toxic" appearance, if one may be permitted the use of such an expression. They had no outstanding complaints but their appearance and clinical behavior became so rapidly worse that the drug had to be discontinued. One patient was prostrated for several days after ingesting one capsule. This happened twice, so that the drug had to be abandoned. One patient developed extreme generalized aches and pains after the ingestion of three capsules. The symptoms recurred after the drug was resumed.

Among other side actions noted were the development of an acute cystitis in one patient and marked dizziness in another, necessitating the withdrawal of the drug.

111. One one-hundredth gram of vitamin C corresponds to about 1 ounce of fresh orange juice.

112. The form used was Celbione, a preparation of Merck & Co., who cooperated in supplying the drug.

102. Horner, W. D., quoted by Barkan, Borley, Fine and Betterman.⁴

103. Horner, W. D., Jones, R. B., and Boardman, W. W.: Cataracts Following the Use of Dinitrophenol, J. A. M. A. 103: 108 (July 13) 1935.

104. Müller, H. K., and Buschke, W.: Arch. f. Augenh. 108: 468, 1934.

105. Bellows, John: Biochemistry of the Lens, Arch. Ophth. 15: 78 (Jan.) 1936.

106. Svirbely, J. L.: J. Biol. Chem. 111: 147 (Sept.) 1935.

107. Goldmann, H., and Buschke, W.: Arch. f. Augenh. 109: 204, 1935.

108. Strauss, W.: Arch. f. Augenh. 108: 585, 1934.

109. Fisher, F. D.: Arch. f. Augenh. 108: 527, 1934. Müller, H. K., and Buschke, W.: Arch. f. Augenh. 108: 592, 1934. Müller, H. K.: ibid. 109: 304, 1935. Müller and Buschke.¹⁴

110. Josephson, E. M.: Science 82: 222 (Sept. 6) 1935.

Colds and sinusitis developed in thirteen patients, in a few twice. Five patients developed acute bronchitis, two acute laryngitis, and three acute tonsillitis. The incidence of these infections of the upper respiratory tract was certainly no greater than would be the case in a control group, yet there is no gainsaying the fact that the excessive sweating, to which many patients are subject, does predispose to the development of colds. Noun's¹¹³ patient, who became sensitized to dinitrophenol and developed asthma, is worthy of note.

TABLE 6.—Effect of Dinitrophenol on Basal Metabolic Rate

	Average Daily Dose of Sodium Dinitrophenol, Gm.	Number of Determinations	Average Metabolic Rate, per Cent	Range, per Cent
Tainter, Stockton and Cutting	Control	87	+ 0.2	−27 to + 19
	0.1	1	+13	
	0.2	10	+20	− 6 to + 88
	0.3	16	+31	+ 7 to + 66
	0.4	16	+50	+22 to + 83
	0.5	8	+56	+ 7 to +107
Author.....	Controls	32	+ 7.3	−16 to +43
	0.1	3	+12	+ 5 to +25
	0.2	2	+14	− 1 to +26
	0.3	7	+30	+ 3 to +65
	0.4	8	+37	+ 3 to +69
	0.55	2	+52	+47 to +60
	Other controls*	12	+ 1.3	−27 to +30

* Patients who did not receive dinitrophenol.

The patients included three with chronic arthritis and five with syphilis (including one with tabes). None suffered any ill effects except the one with tabes, who developed urticaria. Several patients were alcoholic addicts but showed no untoward reactions. Patients with renal damage also showed no unusual susceptibility to the action of the drug. Four patients with moderately advanced rheumatic heart disease (two with mitral stenosis) were included. The drug may be used apparently with impunity in such cases.

Seven fatalities have been reported, six from dinitrophenol and one from dinitro-orthocresol.¹¹⁴ Only two were definitely due to overdosage.¹¹⁵ One cannot refrain from remarking that, in view of the remarkably extensive use of the nitrophenols, often without medical supervision, fatalities are extremely rare.

RESULTS

Tainter, Stockton and Cutting³⁴ achieved weight reduction in 165 of 170 unselected obese patients. The average daily dose was 0.34 Gm. and the average weight loss 1.4 pounds (635 Gm.) a week (table 7, group 9). Others reported losses ranging from 0.92 to 1.7 pounds a week.¹¹⁶ In a review⁸³ of 290 cases in the literature, 276 showed a weight loss. Bayer and Gray¹¹⁷ found dinitrophenol to be an effective adjunct to diet, after the weight loss on diet alone had become stationary. Negative reports in the literature are few.¹¹⁸ Other reports show very disappointing losses of weight.¹¹⁹

113. Noun, M. H.: J. Iowa M. Soc. 25: 610 (Nov.) 1935.
114. Death After Slimming Treatment, Lancet, 1: 489 (March 3) 1934.
Dekrysil Treatment: The Paddington Inquest, ibid, 1: 652 (March 24) 1934.
115. Geiger,¹¹⁵ Masserman and Goldsmith,⁵⁰ Poole and Haining.⁴¹
Tainter and Wood.⁴¹ Silver.⁵² Lattimore.⁴⁰ Dameshek and Gargill.⁵²
116. Geiger, J. C.: A Death from Alpha-Dinitrophenol Poisoning, J. A. M. A. 101: 1333 (Oct. 21) 1933. Poole and Haining.⁴¹ Tainter and Wood.⁴¹
117. Markowitz.⁵² Masserman and Goldsmith.⁵⁰ Salmon.⁵¹
118. Bayer, L. M., and Gray, Horace: Am. J. M. Sc. 189: 86 (Jan.) 1935.
119. Andersen, W. T.: Ugesk. f. læger. 96: 521 (May 17) 1934.
Bortz.⁷¹ Molitch.⁵³ Masserman and Goldsmith.⁵⁰ Silver.⁵² Vermeylen and Heernu.⁴³ Grant and Schube.⁵⁰ Finkelman and Stephens.⁵⁰
119. Strang, J. M., and Evans, F. A.: An Evaluation of Dinitrophenol as an Aid in Weight Reduction, J. A. M. A. 104: 1957 (June 1) 1935. Dunlop.⁹

In the present series the 181 patients were divided into several groups (table 7). When analyzed statistically, some surprising results are obtained. Fifty-nine patients were given dinitrophenol alone (groups 1 and 2). Of these, twelve (20.3 per cent) lost no weight. Forty-seven lost weight very satisfactorily, an average of 2.1 pounds (953 Gm.) a week. This compares with Tainter, Stockton and Cutting's³⁴ average of 1.4 pounds (635 Gm.) a week. Taken as a group, the average loss of weight for the patients on dinitrophenol (group 3) was 1.7 pounds (770 Gm.) a week. The percentage of failure is quite high compared with Tainter's percentage (only five of 170 lost no weight) and yet is more consistent with the fairly numerous failures of reduction reported in the literature. The dosage is not in question, as in an effort to secure weight loss the dose was raised considerably above that of the group which lost weight (3.9 mg. per kilogram in group 1 compared with 3.2 mg. per kilogram in group 2; in many patients the dose ranged between 5 and 6 mg. per kilogram without result).

In group 4, forty-one patients were given 2 grains (0.13 Gm.) of desiccated thyroid and the dinitrophenol dosage was raised enough to produce a satisfactory weight loss. In this group the average weight loss was the same as in group 2, and the dinitrophenol dosage was slightly higher. The chief difference was that all patients lost weight, as contrasted with a failure of 21 per cent in group 3. In group 5 (thirty-nine patients) the thyroid dosage was increased to from 3 to 4 grains (0.2 to 0.26 Gm.) daily. In spite of this increase and a fairly marked increase of dinitrophenol dosage the weight loss was distinctly lower than in either group 2 or group 4. Again there were no failures of weight reduction. In group 6 (which comprised a small group of patients resistant to ordinary dosage) the average loss of weight was the same as in the preceding groups, but the dinitrophenol dose reached was the highest in

TABLE 7.—Effects of Dinitrophenol and Desiccated Thyroid on Reduction of Weight

	Group	Number of Cases	Average Daily Dose of Sodium Dinitrophenol (Mg./Kg.)	Average Daily Dose of Desiccated Thyroid (Grains)	Average Duration of Treatment (Days)	Average Weight Loss per Patient (Lbs./Week)	Average Total Weight Loss per Patient (Lbs.)
Author	1	12	3.9	0	37	0.0	0.0
	2	47	8.2	0	37	2.1	11.1
	3*	59	3.4	0	37	1.7	8.9
	4	41	3.4	2	37	2.0	11.0
	5	39	3.9	3 to 4	53	1.7	13.4
	6	7	4.0	5 to 33	89	1.7	22.2
	7	13	100 mg. daily	3 to 4	22	2.6	8.3
	8	22	0.0	2½ to 6	67	1.5	15.0
Total.....		181					
Tainter et al.	9	170	0.34 gms.	0	88	1.4	17.1

* Summation of groups 1 and 2.

the entire series. The thyroid dosage was also high. One patient, who had pituitary dysfunction, became refractory to thyroid after a dose of 9 grains (0.6 Gm.) daily was reached. The dose was steadily increased to 33 grains (2.15 Gm.) daily without any clinical effects whatever.

In group 7 (thirteen patients), each patient was given one 100 mg. capsule of sodium dinitrophenol daily, and the desiccated thyroid dose was regulated to yield a satisfactory loss of weight. In this group the best results of the series were obtained, the average loss of weight being 2.6 pounds (1,180 Gm.) a week. It must be noted, however, that the duration of treatment was

short, covering an average of three weeks, when patients lose weight most rapidly under any regimen of treatment.

Why the addition of moderate doses of desiccated thyroid (2 grains, or 0.13 Gm. daily) should enhance the action of dinitrophenol is a matter for speculation. Possibly the beneficial effect is due to the action of thyroid on the distribution of water in the body. Thus it tends to prevent the water-logging of the tissues, to which many failures of dinitrophenol therapy must be ascribed. Possibly a few patients in this group would have lost the same amount of weight without the presence of sodium dinitrophenol, even though no rigid dietary measures were followed. It will be noted in groups 2, 4, 5 and 6 that, as the thyroid dosage was steadily raised, a corresponding increase in the dinitrophenol dosage occurred, in order to produce comparable losses of weight. The significance of this is undetermined.

Dinitrophenol acts most satisfactorily in patients with the exogenous type of obesity. "Individuals with pituitary or gonadal gland deficiency often tolerate the drug badly or not at all."⁹ Its ineffectiveness in hypothyroid patients has been noted.¹²⁰ This tendency was also observed in the present series.

A group of twenty-two patients (group 8) were put on a regimen of a moderately restricted high protein diet (averaging 1,500 calories a day) abetted by desiccated thyroid. The dose was controlled by watching the pulse rate. The thyroid was discontinued or reduced when the pulse rate reached 100 a minute. It was controlled also, of course, by the development of nervousness, palpitation, substernal pressure or headache. The effect of thyroid is proportional to the dose. The average rate of weight loss was the lowest of all the groups (1½ pounds, or 680 Gm., a week). The thyroid dosage was moderate. This method of weight reduction is very satisfactory and easy to control. The results obtained may be compared with those of Lyon and Dunlop,¹²¹ who obtained an average daily loss of 273 Gm. on diet combined with thyroid as contrasted with 162 Gm. a day on diet alone. Patients with pituitary disease often show very little response to thyroid therapy. The weight loss in ovarian cases is markedly increased by thyroid.¹²² In group 8 were two patients with hypopituitarism: one did not respond to even a dose of 15 grains (1 Gm.) daily; the other patient lost 36 pounds (16 Kg.) in twenty weeks and then gradually became refractory to even 30 grains (2 Gm.) of desiccated thyroid daily for four months.

REPORT OF CASE

Mrs. M. T., aged 46, white, who weighed 310 pounds (140 Kg.), first began treatment Oct. 31, 1934. She concluded her treatment June 30, 1936, at which time she weighed 170 pounds (77 Kg.), a loss of 140 pounds (63.5 Kg.). She received treatment for eighty-four weeks (treatment being intermitted about every three months for one week). Her average rate of loss was 1.7 pounds (770 Gm.) a week. During her period of treatment she ingested a total of 254 Gm. of dinitrophenol with no ill effects whatever. The dose varied tremendously, the average being 0.5 Gm. daily. For three weeks she took 0.65 Gm. daily. Complete laboratory studies were negative throughout (urine, blood count, icteric index, van den Bergh test, bromsulphalein test, intravenous phenolsulfonphthalein test, dextrose tolerance test and electrocardiogram). She represents the largest loss of weight on dinitrophenol medication recorded in the literature.

120. Dunlop,⁹ Rabinewitch and Fowler.
121. Lyon, D. M., and Dunlop, D. M.: *Quart. J. Med.* 1: 331 (April) 1932.
122. Dunlop, D. M., and Lyons, R. M.: *Edinburgh M. J.* 35: 561 (Oct.) 1931.

COMMENT

In dinitrophenol the medical profession has acquired a remarkable drug, a metabolic agent that is well adapted to both clinical and laboratory research. The problems connected with its unpredictable, and occasionally alarming, reactions in some patients are far from solved. Apparently it is nontoxic to the liver, kidneys and heart in therapeutic dosage. Neutropenias are rare. Peripheral neuritis is rather common but not troublesome. Skin rashes, which are common, no longer excite their quondam fear. Cataracts, whether due to the direct effects of the drug or possibly to some unknown mechanism mediated by it, are common. No loss of weight can be condoned at the price of cataracts, and consequently the indiscriminate clinical use of dinitrophenol should be discontinued at once until the problem of complicating cataracts is solved. The clinical use of dinitrophenol should be reserved for urgent indications only.

CONCLUSIONS

1. One hundred and eighty-one unselected ambulatory obese patients were studied. One hundred and fifty-nine patients were given therapeutic doses, by mouth, of 2:4 sodium dinitrophenol alone or in combination with desiccated thyroid. Twenty-two patients were treated with dietary control and desiccated thyroid.

2. The therapeutic administration of dinitrophenol does not impair liver function (as disclosed by studies of the icteric index, van den Bergh test and bromsulphalein test), renal function (as disclosed by studies of the urine and the intravenous phenolsulfonphthalein test) or cardiac muscle (as disclosed by electrocardiographic tracings).

3. The pulse rate is unaffected by therapeutic dosage. There were two unusual cases of bradycardia. Ten hypertensive patients (including two who had chronic nephritis and one malignant hypertensive patient) showed marked prompt reduction of blood pressure. Normal blood pressure shows no significant change. One case of dinitrophenol phlebitis was observed. The drug can be used very satisfactorily in obese patients with rheumatic heart disease.

4. The dextrose tolerance studies in normal patients reveal that with short courses of dinitrophenol administration there is a moderate elevation of the fasting blood sugar (though not hyperglycemia) and a moderate impairment of dextrose tolerance in the majority of cases. With prolonged therapeutic administration there is no change in the fasting blood sugar and a marked increase in dextrose tolerance. In diabetic patients on short courses of dinitrophenol the results are variable, the dextrose tolerance being increased as often as decreased, with parallel changes in the fasting blood sugar. With prolonged administration in patients with diabetes there is an increase of carbohydrate tolerance.

5. Gastro-intestinal disorders are negligible.

6. The average increase in the basal metabolic rate is about 11 per cent for each 0.1 Gm. daily dose. No consistent effect of dinitrophenol on blood cholesterol was noted.

7. Skin rashes were observed in 20.1 per cent. Simple pruritus occurred in four cases, a macular rash in three, papular and maculopapular rashes in twelve, swelling and redness of the hands and feet in four, and urticaria in ten. A violent urticarial reaction was observed. A case of dinitrophenol alopecia was observed.

8. There is no way of predicting sensitivity to dinitrophenol. Skin tests are of no value. Dinitrophenol reactions are probably only rarely allergic in character.

9. Four patients developed marked peripheral neuritis. Five patients showed disturbances of taste that disappeared without omission of the drug.

10. No case of agranulocytosis developed nor were any changes noted in the blood cells, as shown by blood counts.

11. In a case of cataracts complicating dinitrophenol therapy, somewhat encouraging results were obtained with vitamin C therapy.

12. Other toxic side-actions, such as generalized pains and weakness, were observed.

13. With dinitrophenol alone, 20.3 per cent of patients (twelve of fifty-nine) lost no weight. The average loss of weight for the remainder (forty-seven patients) was 11.1 pounds per patient, with an average rate of weight loss of 2.1 pounds weekly. The addition of 2 grains (0.13 Gm.) of desiccated thyroid daily produced a marked increase in dinitrophenol effectiveness, no failure of reduction occurring in this group. The average weight loss in this group was 11 pounds per patient, with an average rate of loss of 2 pounds a week. The group treated with diet and desiccated thyroid lost an average of 15 pounds, with an average rate of weight loss of $1\frac{1}{2}$ pounds a week.

14. One patient lost 140 pounds (63.5 Kg.) in eighty-four weeks, an average of 1.7 pounds (770 Gm.) a week. During that time she took 254.6 Gm. of sodium dinitrophenol with no ill effects, as demonstrated by complete repeated laboratory and clinical studies.

15. The indiscriminate clinical use of dinitrophenol should be discontinued until the vexing problem of cataracts complicating dinitrophenol therapy is solved.

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Clinical Notes, Suggestions and New Instruments

PRIMARY HEMATOGENOUS OSTEITIS OF THE PATELLA

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Primary spontaneous hematogenous osteitis of the patella is evidently quite unusual, according to the reported cases in a review of the literature on this subject. Also the diagnosis of this condition is rarely made early enough to prevent marked destruction of the patella and an extension of the infection. Chesky¹ in 1923 made an extensive review and found thirty-five cases reported and added one of his own. Other cases have been reported by Christopher,² Dillehunt,³ Martin⁴ and Sagel.⁵ The following case is of unusual interest:

Mrs. M. Y., aged 20, was seen Dec. 28, 1936, at St. John's hospital. Examination showed the right knee and the region just above and below to be swollen to about twice the normal size. The swelling extended about 8 inches (20 cm.) above the knee and 2 or 3 inches (5 or 7.5 cm.) below. This area of swelling was red and painful, and the skin over the knee joint was darkly mottled. The extremity was fixed in extension and was very painful on flexion or extension. There was but slight pain on motion in a longitudinal direction. The swelling was tense and no fluctuation could be made out. The temperature was 102 F., pulse 120 and respiration rate 26. Physical examination was entirely negative in other respects. The white blood count was 8,150. The Kahn and Kline reactions were

negative. There was physical and laboratory evidence of a moderate secondary anemia. There was no evidence of tuberculous or gonorrheal infection.

X-ray examination of the region of the right knee showed marked absorption and osteitis, with many sequestrums involving the entire patella. All the other bony structures in the region of the knee joint were normal.

The patient gave a history of gradually increasing pain in the region of the right knee, which had started eight weeks previously. She had been treated during these eight weeks with various forms of therapy for variously named diseases. No history of trauma or local infection was obtained.

Under spinal anesthesia the knee joint was aspirated with a large bore needle and no fluid was found. An incision was made over the patella, and a large amount of pus, estimated at two thirds of a pint, was evacuated. The pus had extended into the prepatellar bursa and up the median side of the thigh a distance of 6 inches (15 cm.). The knee joint did not contain an increased amount of fluid. The patella was practically destroyed and all that remained was several sequestrums. The sequestrums were removed and drainage was established.

Microscopic examination of the pus and blood agar cultures showed numerous colonies characteristic of *Staphylococcus aureus* in pure culture. Microscopic examination of the sequestrums showed marked neutrophilic and round cell infiltration with much focal necrosis.

During convalescence repeated questioning disclosed no history of trauma or infection to the knee or any other part of the body. There was no history of any infection obtained. No doubt some infection in the throat or some part had been present.

Following the removal of the sequestrums and drainage she was immediately relieved of pain, and her general physical condition rapidly improved. The drainage continued for about five weeks. At this time, Feb. 20, 1937, the wound is closed, she has about 50 per cent motion of the knee, which is increasing, and she is walking with a slight limp and bearing weight on this leg.

816 National Bank of Tulsa Building.



Osteitis of the patella.

Weelum MacLure.—Stouten your hearts by reading of the doctor in fiction, and emulate Lydgate, at least up to the point which will warn you against marrying the wrong woman. Familiarize yourselves with the writings of healthy-minded doctors like Oliver Wendell Holmes and John Brown, of Rab and His Friends. If you need an antidote for the cynicism of Arrowsmith, buy or borrow Sarah Orne Jewett's nigh-forgotten story depicting her own father as a country doctor; for there are still John Leslies in the country districts and room for many more—plenty of room, too, for Nan; and if she is really serious about it she's worth to the world a thousand Leoras. Perhaps best of all, if you would learn what unalloyed professional devotion may be and what rewards it may bring, read or reread the last chapters of Ian Maclaren's *Beside the Bonnie Briar Bush* and let the example of Weelum MacLure, to whom I have already alluded, become a part of you.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

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Special Article

DIPHTHERIA MORTALITY IN LARGE
CITIES OF THE UNITED
STATES IN 1936

FOURTEENTH ANNUAL REPORT

For the preparation of this annual review, data have been obtained from the health departments of the same ninety-three cities that have been considered in previous annual reviews on diphtheria death rates and likewise the same cities for which data were tabulated on typhoid.¹ The health officers were asked to furnish their own local estimates of population in view of the fact that figures for 1936 have not been released by the United States Census Bureau. In the case of Scranton, the figures were furnished by the Pennsylvania State Health Department. In a few instances in which the local health department did not furnish an estimate, the 1930 census figures were employed. It is believed that any reasonable corrections in population would not materially influence the rates.

As has been the case in previous articles, the health department was requested to report not only the total number of diphtheria deaths that actually occurred in the community but to indicate the number of deaths among nonresidents.

The fourteen New England cities (table 1) continue to have a good record, the death rate for the entire group being practically the same as for 1935. In each of the last two years there were twenty-eight deaths from diphtheria in this group. While for 1935 half of these cities reported no death from diphtheria, in 1936 there were only three cities (Cambridge, New Haven, Somerville) with no death; but there were three addi-

TABLE 1.—Death Rates of Fourteen Cities in New England
States from Diphtheria (Including Group) per
Hundred Thousand of Population

	1936	1935	1930- 1934	1925- 1929	1920- 1924	1915- 1919	1910- 1914	1905- 1909	1900- 1904	1895- 1899	1890- 1894
Cambridge.....	0.0	0.0	1.2	3.2	8.9	12.9	23.8	25.3	46.7	71.9	58.0
New Haven.....	0.0	0.0	0.5	1.6	7.1	14.2	14.9	22.7	15.6	54.8	74.5
Somerville.....	0.0	0.0	0.0	5.7	19.7	20.2	21.4	21.5	40.5	57.8	37.4
Providence.....	0.4	1.2†	5.0	9.5	15.8	29.3	26.8	30.7	41.2	53.5	55.3
Worcester.....	0.5*	0.5	2.9	8.6	15.5	14.1	21.3	32.2	16.5	50.3	47.8
Bridgeport.....	0.7*	0.0	1.0	11.8	19.6	23.4	23.3	26.8	34.2	63.9	79.3
Boston.....	0.9	1.3	3.2	8.3	20.2	26.3	20.0	26.2	53.7	83.9	112.2
New Bedford.....	0.9	0.0†	4.8	10.9	16.5	17.0	20.9	22.6	25.1	53.6	20.0
Waterbury.....	1.0	0.0	2.4	2.6	17.9	23.0	29.6	....	....	....	....
Hartford.....	1.1	4.1†	1.1	5.3	11.9	13.8	25.3	26.1	33.8	47.8	120.9
Springfield.....	1.3*	0.0	2.1	10.3	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Fall River.....	1.7	1.7†	3.9	12.0	25.5	23.6	24.0	34.4	50.1	43.8	46.9
Lynn.....	2.0	0.0	4.7	13.5	17.0	17.8	17.2	21.7	38.0	44.0	49.0
Lowell.....	8.0	4.0†	9.4	10.6	16.7	23.5	20.6	31.0	59.3	44.3	26.4

* All diphtheria deaths were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau.

tional cities (Worcester, Bridgeport, Springfield) in which it is stated that all deaths occurred among nonresidents. Cambridge and New Haven have had no death from diphtheria during the past three years (table 10). Cambridge and Somerville reported no death from diphtheria or typhoid in 1936 (table 12).

The preceding articles were published in THE JOURNAL, Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759; June 7, 1930, p. 1838; May 23, 1931, p. 1768; May 7, 1932, p. 1644; May 20, 1933, p. 1595; May 26, 1934, p. 1758; June 15, 1935, p. 2182, and June 13, 1936, p. 2060.

1. Typhoid in the Large Cities of the United States in 1936, J. A. M. A. 108: 2118 (June 19) 1937.

Lowell, with a rate of 8.0 (table 1), not only had the highest death rate of any city in the group but also the highest death rate of any of the ninety-three cities (table 9). The death rate in this city has been relatively high for many years. With this one exception, no city in the group had a rate in excess of 2.0. Boston, the largest city, reported seven diphtheria deaths, of which two were in nonresidents.

There are eighteen cities in the Middle Atlantic states in which eighty-seven deaths from diphtheria were reported in 1936, a definite decrease from the 129

TABLE 2.—Death Rates of Eighteen Cities in Middle Atlantic
States from Diphtheria (Including Group) per
Hundred Thousand of Population

	1936	1935	1930- 1934	1925- 1929	1920- 1924	1915- 1919	1910- 1914	1905- 1909	1900- 1904	1895- 1899	1890- 1894
Albany.....	0.0	0.0	2.9	7.5	12.8	10.4	20.0	31.6	26.9	....	....
Elizabeth.....	0.0	1.7†	4.5	13.2	19.2	19.3	14.8	51.7	42.4	60.5	79.3
Erie.....	0.0	0.0	3.5	6.8	16.8	15.1	17.7	27.1	42.3	23.1	....
Newark.....	0.0	0.9	3.0	14.5	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Rochester.....	0.0	0.0	0.7	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Syracuse.....	0.0	0.0	0.4	2.0	22.9	12.9	16.6	17.4	17.7	31.1	53.4
Trenton.....	0.0	2.4†	2.7	4.4	7.3	8.8	12.8	15.8	23.6	92.7†	89.7†
Utica.....	0.0	0.0	1.2	13.4#	....	....	....	....	....	....	....
New York.....	0.5	0.9	2.2	10.7	14.0	21.8	25.0	40.0	58.0	85.8	134.4
Philadelphia.....	0.5	1.0	1.3	11.8	16.7	22.7	24.6	34.1	50.0	100.6	119.4
Paterson.....	0.7	1.4	6.8	9.1	18.5	13.5	16.1	25.5	62.9	111.8	143.4
Scranton.....	0.79	0.0†	1.3	11.7	12.3	22.1	23.4	....	....	77.8†	48.6†
Camden.....	0.8	5.0†	7.7	21.9	20.3	23.2	38.8	45.9	62.6	93.8	194.0
Reading.....	0.9	0.0	3.8	7.3	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Jersey City.....	1.2	4.1	6.0	11.5	18.4	21.0	23.2	32.6	57.9	85.4	108.6
Buffalo.....	1.7†	1.0†	4.8	9.1	24.0	27.3	22.0	18.4	21.8	53.5	60.9
Pittsburgh.....	2.3	1.5	5.0	11.5	20.1	22.3	29.3	20.4	36.9	32.9	56.4
Yonkers.....	5.5	0.0	0.6	10.4	17.0	17.7	25.3	....	....	....	....

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

Diphtheria deaths from Chapin's Municipal Sanitation.

‡ Incomplete data.

§ Diphtheria data for Scranton furnished by Pennsylvania Department of Health, Harrisburg

deaths in 1935. The rate of 0.65 (table 15) is but two thirds of the rate for 1935. This group of cities had the lowest quinquennial average for 1930-1934 as well as the lowest rates for the past two years. While in 1935 there were three cities with a rate higher than 2.0 (Trenton, Camden, Jersey City), there were but two cities with rates above 2.0 in 1936 (Pittsburgh, Yonkers). Yonkers finds itself in the unenviable position of having both a high diphtheria (5.5) and a high typhoid (4.8) rate in 1936. This is quite in contrast to the low death rate reported in Yonkers since 1930. No comment is made by the health officer of any unusual outbreak. Eight cities reported no death from diphtheria in 1936. Syracuse has had no death in four consecutive years, Utica has been without a death during the past three years, and Albany, Erie and Rochester report no deaths in 1935 and 1936 (table 10). Syracuse and Utica have the distinction of being in the group of six cities (table 12) that report no death from diphtheria or typhoid in 1936. Among the largest cities, New York with thirty-five resident deaths records a new low rate (0.5). The rate is the same in Philadelphia (0.5), with ten resident deaths. Of ten deaths in Buffalo, five occurred among nonresidents. Of the sixteen deaths in Pittsburgh, two were of nonresidents. Of the nineteen cities with no diphtheria death in 1936, eleven are in the New England and Middle Atlantic groups (table 11). Of the six cities with no deaths from typhoid or diphtheria, four are in these two groups (table 12). Of the eight cities that have gone two or more years without a death from diphtheria, all except Tacoma are in the New England and Middle Atlantic groups (table 10).

The nine cities of the South Atlantic group record sixty-seven deaths, compared with eighty in 1935, a

rate in 1936 of 2.59. One city (Wilmington) reports no death in 1936. Five of the nine report rates in excess of 2.0. Atlanta and Washington have rates below that of the preceding year (table 3). Of twenty-seven deaths in Washington, nine were among non-residents; of five deaths in Richmond, three were among nonresidents. If correction for residence is made, the list of cities without a death increases to three with the addition of Miami and Tampa. Baltimore with ten deaths, two of which were of non-residents, shows an increase over 1935; however, this city continues to maintain a relatively good position in this division.

The cities in the East North Central states report 168 deaths compared with 236 in 1935 (table 15).

TABLE 3.—Death Rates of Nine Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Wilmington.....	0.0	3.7	5.3	10.9	11.6	15.2	18.0	27.8	50.9	84.0	83.8
Miami.....	0.8*	6.5	3.8	5.4#	....	....	....	....	....	....	....
Tampa.....	1.0*	6.6†	4.8	4.6	5.2	9.5#	....	....	....	....	....
Baltimore.....	1.2	0.7†	1.7	7.6	11.4	13.5	14.2	16.1	83.0	68.1	70.0
Richmond.....	2.7†	1.1†	3.6	6.9	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Norfolk.....	3.1	2.3	4.6	4.1	4.3	4.1	6.7	17.0	....	....	....
Atlanta.....	3.8	6.8†	5.7	7.0	13.3	10.1	12.5	14.2	11.1	10.5	8.8
Washington.....	4.3†	5.8	3.9	7.1	10.5	11.9	6.9	11.2	23.5	50.9	77.9
Jacksonville.....	4.7	2.2	5.4	6.0#	....	....	....	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

TABLE 4.—Death Rates of Eighteen Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Grand Rapids...	0.0	0.6	0.3	2.0	19.6	13.5	20.0	26.6	17.2	32.4	99.2
Milwaukee.....	0.3*	0.7	2.0	8.5	11.4	19.8	27.8	26.4	22.7	51.7	116.2
South Bend.....	0.9	2.7	1.3	....	....	....	....	....	....	....	....
Toledo.....	1.0	0.7	2.8	7.2	22.4	14.1	25.4	20.4	56.8	34.6	89.3
Canton.....	1.0*	0.9	1.7	2.9	17.5	15.1#	....	....	....	....	....
Cleveland.....	1.1	2.3	2.5	15.3	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Detroit.....	1.1	0.7	4.8	19.7	24.3	32.2	33.3	22.6	38.5	62.9	132.9
Youngstown.....	1.1	0.6	3.3	10.5	18.5	11.9	40.5	33.5	28.0	17.6	28.4#
Columbus.....	1.2†	3.3	3.2	4.8	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Flint.....	1.2	6.0	2.7	4.5	29.0	25.5	12.7	11.0	16.8	6.9	69.2
Akron.....	1.6	4.1	2.7	4.9	10.4	18.9	27.8	21.8#	....	....	....
Cincinnati.....	1.7†	4.1†	3.2	5.2	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Fort Wayne.....	2.4†	6.7	3.3	5.1	13.1	6.3	....	....	....	....	....
Chicago.....	2.5	2.4	4.3	11.7	17.5	31.2	37.9	27.0	33.9	69.7	117.3
Peoria.....	2.6†	12.7	5.3	4.9	7.4	10.8	10.6	10.9#	14.0	14.6	68.0
Dayton.....	2.7	7.3	3.5	4.6	9.4	9.3	22.1	13.3	17.2	27.4	82.9
Evansville.....	2.8	0.0	3.2	3.7	13.9	14.9	16.1	21.2	13.8	18.1	69.7
Indianapolis.....	3.0	5.6†	3.1	6.6	11.7	21.4	13.5	13.3	15.9	36.4#	97.3#

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

The group rate of 1.73 is lower than that of 2.45 in 1935. Grand Rapids is the only city (table 4) with no death, although Milwaukee, Canton and Peoria record that all deaths were among nonresidents. For Milwaukee it is stated that two nonresident cases were brought into the city for hospitalization. There are but four cities of the eighteen which have a corrected rate in excess of 2.0. Evansville, at the top of the list in 1935 with no death, dropped nearly to the bottom in 1936 with a rate of 2.8, as a result of three resident deaths. Among the larger cities Chicago records eighty-seven deaths, all but one being residents; Detroit reports eighteen deaths, of which five are among nonresidents; Cleveland reports ten deaths, of which all are among residents. Of the eight deaths in Cincinnati, three are of nonresidents.

The six cities in the East South Central states have greatly improved their records over the preceding year, there being thirty-eight deaths in 1936 in contrast to fifty-nine in 1935 (table 15). Of these thirty-eight deaths fourteen, or 37 per cent, occurred among non-residents, again showing how these Southern cities

TABLE 5.—Death Rates of Six Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Louisville.....	1.4†	4.7	6.3	4.6	10.4	9.5	9.0	....	....	39.0#	49.6#
Memphis.....	2.2†	2.7†	6.0	5.8	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Chattanooga...	3.3	4.0	6.8	5.9	8.7	8.9	....	....	....	....	....
Birmingham...	3.5†	2.9	4.2	5.4	5.3	7.2	8.3	6.2	13.4	16.5	26.3
Nashville.....	3.8†	5.8†	8.2	11.8	8.0	8.9	7.3	10.3	13.9	30.1	28.4
Knoxville.....	6.5†	13.6†	9.6	6.3	11.2	....	....	....	....	....	....

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

serve as hospital centers for surrounding territory. With one single exception each city in the group shows a lower rate than for the preceding year (table 5).

The West North Central states (table 15) record thirty-eight deaths, compared with fifty-nine in 1935, lowering the group rate from 2.18 to 1.37. There are

TABLE 6.—Death Rates of Nine Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Duluth.....	0.0	1.0	0.4	2.0	6.0	10.2	8.8	38.2	29.1	7.6	49.5
Kansas City, Mo.	0.0	2.2	3.2	4.7	14.4	22.8	15.7#	....	....	....	....
St. Paul.....	0.0	0.7†	1.1	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Kansas City, Kan.	0.8	2.4	3.7	4.6	9.8	23.1	12.4#	....	....	....	....
Wichita.....	1.0	2.5	4.6	4.2	....	....	....	....	....	....	....
Minneapolis.....	1.6	0.6	1.7	11.9	13.4	19.9	23.3	24.4	44.6	34.0	55.0
St. Louis.....	2.0	2.9	4.3	10.3	16.1	24.4	23.7	19.4	43.3	62.9	67.7
Omaha.....	2.7	3.2	4.7	6.4	22.9	35.8	15.8	24.5	20.5	28.2	82.9
Des Moines.....	3.5†	4.8	4.3	5.2	15.1	16.6	15.1	23.8#	....	....	....

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

three cities (Duluth, Kansas City, Mo., St. Paul) with no death in 1936, which is a significant improvement over the record of the preceding year, when there was no city in this class (table 6). Duluth records no death from either diphtheria or typhoid in 1936. Of eight deaths in Minneapolis and six in Omaha, all are

TABLE 7.—Death Rates of Eight Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Tulsa.....	2.1	3.4	6.8	12.5	8.3#	....	....	....	....	....	....
Oklahoma City..	3.8	2.5	5.7	10.9	....	....	....	....	....	....	....
El Paso.....	3.9	3.8	8.0	7.3	20.0	17.6	29.2	....	....	....	....
Fort Worth.....	3.9	7.1	7.2	10.8	1.7#	2.6#	2.6	2.8	5.4	....	....
New Orleans.....	3.9†	5.5†	5.5	8.5	6.5	11.6	19.6	10.2	11.5	17.1	51.3
Houston.....	4.1	4.7	5.6	8.2	6.4	6.1	7.8	10.5	4.2#	2.4	1.8
San Antonio.....	5.0	9.4	5.6	10.3	7.7	8.7	6.7	7.6	17.1	20.6	4.4
Dallas.....	7.3	6.5	9.7	9.8	8.3	7.4	6.9	8.1	16.9	16.0	21.8

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

recorded as among residents. Of the seventeen deaths in St. Louis, three are of nonresidents and of the five in Des Moines, two are of nonresidents. Duluth seems to be holding its place as the leader in the West North Central group.

The eight cities in the West South Central group, while showing a decrease in the number of deaths from 108 in 1935 to eighty-seven in 1936, continue to have the highest rate for any section of the country (table

TABLE 8.—Death Rates of Eleven Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1936	1935	1934	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Salt Lake City..	0.0	1.4†	0.3	10.1	12.5	14.5	15.1	34.2	46.0	14.8	56.7#	
Spokane.....	0.0	1.7	0.7	7.5	11.3	4.2	7.6	25.8	...	59.5#	18.1	
Tacoma.....	0.0	0.0	3.9	9.3	12.4	7.7#	...	...	...	...	...
Portland.....	0.3	6.0	1.3	6.4	11.3	6.0	12.3	12.2	20.2	...	...
San Francisco...	0.6	0.6	1.2	4.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8	
Seattle.....	0.8	0.0	0.4	1.4	6.6	5.5	5.2	12.5	13.4#	27.3#	...	
Oakland.....	1.0	5.7†	2.0	7.4	18.8	8.1	10.3	16.1	29.1	...	...
Long Beach.....	1.3	1.9†	0.8	2.6	10.4#	...	...	...	...	...	...
San Diego.....	2.3	1.9	2.9	6.6	12.2	10.5	8.0	5.8	2.4	...	...
Denver.....	2.7	4.8	3.9	8.9	23.2	6.7	10.2	20.8	29.6	27.3	120.2	
Los Angeles.....	3.5†	2.8	4.8	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0	

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

TABLE 9.—Five Cities with Highest Diphtheria Rate for 1936

Lowell.....	8.0	Yonkers.....	5.5
Dallas.....	7.3	San Antonio.....	5.0
Knoxville.....	6.5		

TABLE 10.—Eight Cities with no Diphtheria Deaths in 1935 and 1936

Albany Cambridge * Erie	New Haven * Rochester Syracuse *	Tacoma Utica *
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* No diphtheria deaths in three years.

TABLE 11.—Nineteen Cities with no Diphtheria Deaths in 1936

Albany Cambridge Duluth Elizabeth Erie	Grand Rapids Kansas City, Mo. New Haven Newark Rochester	Salt Lake City Somerville Spokane St. Paul Syracuse	Tacoma Trenton Utica Wilmington
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TABLE 12.—Six Cities with no Diphtheria and Typhoid Deaths in 1936

Cambridge Duluth	Salt Lake City Somerville	Syracuse Utica
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15). It is this same group of cities that records the highest death rate for typhoid. There is not a city in the group with a diphtheria death rate in 1936 below 2.0 (table 7). Dallas, with nineteen deaths, of which six are among nonresidents, has the highest rate. As in the case of the East South Central states, non-residence plays an important part, as evidenced by four nonresident deaths out of thirteen deaths in San Antonio and ten out of twenty in New Orleans. In Houston there is no separation by residence for the fourteen deaths from diphtheria. Of the five cities with the highest rate for 1936, two (Dallas and San Antonio) are in this group. Fort Worth and San Antonio show a noteworthy decrease in rate over the preceding year.

The Mountain and Pacific states record seventy-one deaths in 1936, compared with eighty-three in 1935 (table 15). As in the preceding year there are three cities with no deaths (table 8). In only one instance (Tacoma) has there been complete absence of deaths

for two consecutive years. Of the eleven cities there are but three with rates in excess of 2.0 and there are six cities with a rate less than 1.0. Oakland reports a noteworthy decrease from 5.7 to 1.0. Of forty-six deaths occurring in Los Angeles, seventeen were among nonresidents.

Of the entire ninety-three cities there were nineteen in 1935 with a rate of 5.0 and over (table 13). In 1936 there were but five cities in this class. The number of cities with no deaths from diphtheria was the

TABLE 13.—Number of Cities with Various Diphtheria Death Rates

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5	0.0
1890-1894.....	64	52	60	61	62	2	0
1895-1899.....	66	34	53	63	65	1	0
1900-1904.....	68	22	46	64	66	2	0
1905-1909.....	72	3	43	66	71	1	0
1910-1914.....	79	1	56	63	78	1	0
1915-1919.....	94	0	25	62	81	3	0
1920-1924.....	88	0	14	65	86	2	0
1925-1929.....	92	0	1	22	67	25	0
1930-1934.....	93	0	0	0	24	69	0
1935.....	93	0	0	2	17	76	19
1936.....	93	0	0	0	5	69	19

TABLE 14.—Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1935 *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 of Population
1923	31,060,848	4,078†	13.13
1924	31,722,841	3,439	10.81
1925	32,384,834	3,133	9.67
1926	33,046,827	3,106	9.40
1927	33,708,820	3,493	10.26
1928	34,370,813	3,176	9.24
1929	35,032,806	2,738	7.82
1930	35,694,802	1,827	5.12
1931	36,356,812	1,366	3.74
1932	37,018,812	1,191	3.21
1933	37,680,812	861	2.32
1934	38,342,812	821	2.24
1935	39,004,812	764	2.05
1936	39,666,812	568	1.51

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.

† Data from Fort Worth lacking.
‡ The rate for the ninety-three cities in 1935 is 2.00 (population 37,437,812, diphtheria deaths 752). The corresponding rate for 1934 was 2.26 and the average for 1930-1934 was 3.24. The rate for the ninety-three cities in 1936 is 1.52 (population 38,249,094, diphtheria deaths 581).

TABLE 15.—Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	Population	Diphtheria Deaths		Diphtheria Death Rates			
		1926	1935	1926	1935	1930-1934	1925-1929
New England.....	2,630,017	23	23	1.05	1.07	3.23	8.21
Middle Atlantic.....	13,291,916	87	129	0.65	1.09	2.59	9.57
South Atlantic.....	2,585,257	67	80	2.59	3.23	3.54	7.27
East North Central..	9,705,898	163	236	1.73	2.45	3.05	11.21
East South Central..	1,253,423	23	59	2.45	4.75	6.25	6.21
West North Central..	2,775,847	53	59	1.37	2.18	3.22	7.52
West South Central..	1,979,575	87	103	4.29	5.23	6.55	9.21
Mountain and Pacific	2,597,161	71	83	1.78	2.69	2.69	6.24

* Lacks data for 1925 for Jacksonville and Miami.
† Lacks data for South Bend.
‡ Lacks data for Oklahoma City for 1925 and 1926.

same each year, nineteen. There were, however, only eight cities (table 10) that were in this class for both years.

While no attempt has been made to determine the relationship between an active program of diphtheria prevention and the prevalence of this disease, the gen-

eral opinion gained by observation and knowledge of local circumstances leads inevitably to the conclusion that the preventive programs so extensively instituted throughout the country are resulting in a lower death rate from diphtheria.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

AT ITS 1936 MEETING THE COUNCIL DISCUSSED THE STATUS OF AMINO-PHYLLINE. AS A RESULT OF THE DISCUSSION THE COUNCIL VOTED TO CONTINUE RECOGNITION OF CLAIMS FOR THIS DRUG AS A MYOCARDIAL STIMULANT AND DIURETIC. THE COUNCIL DECIDED THAT THERE IS NO WARRANT FOR CLAIMS OF EFFICACY AS A DILATOR OF THE CORONARY ARTERIES OR OF USEFULNESS IN OVERCOMING PAIN IN CORONARY OCCLUSION OR ANGINA PECTORIS. AS A RESULT OF FURTHER CONSIDERATION THE COUNCIL VOTED THAT CLAIMS FOR ALL OTHER ACCEPTED XANTHINE DERIVATIVES BE SIMILARLY RESTRICTED AND THAT MANUFACTURERS OF ACCEPTED PRODUCTS BE NOTIFIED THAT AFTER OCTOBER 1 ALL ADVERTISING FOR SUCH PRODUCTS MUST CONFORM TO THESE LIMITATIONS.

THE COUNCIL FURTHER AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT.

PAUL NICHOLAS LEECH, Secretary.

LIMITATIONS OF CLAIMS FOR AMINO-PHYLLINE AND OTHER XANTHINE DERIVATIVES

Few significant studies relating to the action of theobromine and theophylline preparations in cardiovascular disease have appeared since this subject was last reviewed.¹

Experimentally it has again been demonstrated that these substances cause dilatation of the coronary arteries in dogs² and in rabbits.³ In the latter the effect secured seemed to vary with the concentration of the drug, as it was noted that strong solutions of theobromine with sodium salicylate caused actual vasoconstriction while weaker concentrations produced the more usual vasodilatation. The dilator effect in intact dogs when theophylline ethylenediamine was given intravenously in doses comparable to those used clinically was found to last from six to forty-seven minutes, with an average duration of 21.6 minutes.^{2b}

A new experimental approach to a study of the vasodilator effect of these substances was devised by Fowler, Hurevitz and Smith,⁴ who noted the effects of theophylline with ethylenediamine on cardiac infarcts produced by ligating the coronary arteries of dogs. When the artery was tied, an area of cyanosis appeared corresponding to the infarcted area. If the drug was then given, the cyanotic area decreased in size. Furthermore, the resulting infarct was smaller in those animals which were treated with daily doses of the drug postoperatively before being killed. From these observations the authors concluded that "theophylline ethylenediamine promotes the development of the collateral circulation in experimentally induced cardiac infarction in the dog. The results justify the use of this preparation in the treatment of disease of the coronary arteries and acute coronary occlusion."

With these conclusions Wiggers and Green⁵ are in disagreement. These authors failed to detect significant changes in the inflow rate at high perfusion pressure before and after the use of drugs following experimental coronary occlusion in dogs; nor were they able to prevent contractile failure or to restore contractions to the ischemic area. The drugs used included theobromine and theophylline preparations. Summing up, the authors stated that "a sufficient sampling of possible

useful drugs by these methods necessitates, we regret, the conclusion that an increase in collateral circulation sufficient to be of functional use cannot be attained by use of vasodilating drugs after complete coronary occlusion."

Clinically the use of theobromine and theophylline preparations has continued to be widely recommended for the relief of such complaints as cardiac pain, cardiac asthma, paroxysmal dyspnea, Cheyne-Stokes respiration and intermittent claudication. For the most part these reports are uncritical and the observations are uncontrolled. No attempt will be made to review these papers here.

Two carefully controlled studies of the effect of drugs in reducing the frequency of attacks of angina pectoris have been made. In 1933 Evans and Hoyle⁶ reported their observations on the effect of thirteen drugs compared with a placebo on the frequency and severity of attacks in a series of patients with angina pectoris. The medications employed included sodium-theobromine, sodium salicylate and aminophylline. In summary the authors stated that "with one exception a measure of improvement appears to result from every remedy tried, and at least as great an improvement during treatment with placebo. This universal efficacy can only be explained by natural variations in the severity of the symptoms, which give a spurious value to each remedy. . . . We have been unable to convince ourselves that any drug tested is worthy even of trial in the routine treatment of the disease." A substantially similar study of theobromine and aminophylline has been made by Gold, Kwit and Otto,⁷ who concluded that "the xanthines exert no specific action which is useful in the routine treatment of cardiac pain."

The peripheral vasodilating effect of theobromine and its salts has been studied by measurements of the skin temperature under the necessary carefully controlled conditions. In fifteen patients with peripheral vascular disease, Newell and Allen⁸ found that theobromine with sodium salicylate produced an average rise of 1.8 degrees C. and that this lasted about two hours. They concluded that the drug was less effective than other measures but that it might be used as an adjunct to them. An essentially similar conclusion was reached by Scupham.⁹ More recently McGovern, McDevitt and Wright,¹⁰ giving large amounts of theobromine with sodium salicylate by mouth and by iontophoresis to patients with vascular disease of the extremities, found it to be a feeble and unreliable vasodilator and concluded that it was valueless in the treatment of peripheral vascular disease.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

PROCAINE-ABBOTT (See New and Nonofficial Remedies, 1937, p. 69.

The following dosage form has been accepted:

Ampoules Procaine Hydrochloride Solution 2%, 1 cc.: Each cubic centimeter contains procaine hydrochloride 0.02 Gm., sodium chloride 0.005 Gm., and distilled water to make an isotonic solution of 1 cc.

DIGIPOTEN (See New and Nonofficial Remedies, 1937, p. 192).

The following dosage forms have been accepted:

Digitoten Tablets 0.05 Gm. (3/4 grain): Each tablet contains 1/2 U. S. P. digitalis unit.

Digitoten Tablets 0.1 Gm. (1 1/2 grains): Each tablet contains 1 U. S. P. digitalis unit.

6. Evans, William, and Hoyle, Clifford: The Comparative Value of Drugs Used in the Continuous Treatment of Angina Pectoris, *Quart. J. Med.* 2: 311 (July) 1933.

7. Gold, Harry; Kwit, N. T., and Otto, Harold: The Xanthines (Theobromine and Aminophylline) in the Treatment of Cardiac Pain, this issue, p. 2173.

8. Newell, C. E., and Allen, E. V.: The Peripheral Vasodilating Effect of Theobromine Given Orally and Intravenously, *J. Tennessee M. A.* 27: 291 (Aug.) 1934.

9. Scupham, G. W.: Effect of Theobromine on Peripheral Vascular Disease: Clinical Observations, *Arch. Int. Med.* 54: 685 (Oct.) 1934.

10. McGovern, Teresa; McDevitt, Ellen, and Wright, I. S.: Theobromine Sodium Salicylate as a Vasodilator, *J. Clin. Investigation* 15: 11 (Jan.) 1936.

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2. (a) Gilbert, N. C., and Fenn, G. K.: The Effect of the Purine Base Diuretics on the Coronary Flow, *Arch. Int. Med.* 44: 118 (July) 1929. (b) Stoland, O. O.; Ginsberg, A. M.; Loy, D. L., and Hiebert, P. E.: Studies on Coronary Circulation: IV. A. The Duration of the Coronary Dilator Action of Theophylline Ethylenediamine, *J. Pharmacol. & Exper. Therap.* 51: 387 (Aug.) 1934.

3. Weichansky, D.: Vergleich der Wirkung einiger Stoffe auf die Coronargefäße und die peripheren Gefäße isolierter Kaninchenorgane, *Ztschr. f. d. ges. exper. Med.* 83: 429, 1932.

4. Fowler, V. M.; Hurevitz, H. M., and Smith, F. M.: Effect of Theophylline Ethylenediamine on Experimentally Induced Cardiac Infarction in the Dog, *Arch. Int. Med.* 56: 1242 (Dec.) 1935.

5. Wiggers, C. G., and Green, H. D.: The Ineffectiveness of Drugs upon Collateral Flow After Experimental Coronary Occlusion in Dogs, *Am. Heart J.* 11: 527 (May) 1936.

GASTRIC ACIDITY AND EXPERIMENTAL
ULCER

Recently evidence was discussed¹ in support of the view that ulcers produced in the gastro-intestinal tract of dogs by certain experimental procedures are due chiefly to the corrosive action of excessive amounts of free acid in the chyme. The increase in the free acidity of the gastric contents may result from either an increased secretion of acid, as some believe to be the case frequently in human ulcer, or from a decrease in the amount of available neutralizing alkali, particularly in the duodenum. The latter factor appears to be of primary importance in the production of ulcer in dogs by surgical procedures. It was stated also that within wide limits the concentration of pepsin appears of little importance, granted of course, that some of the enzyme is present.

Recently also further studies on ulcers produced surgically in the dog have been reported.² This work likewise serves to emphasize the etiologic importance of unneutralized gastric acidity in the production of this type of ulcer and the essential rôle of the alkaline duodenal secretions in the prevention of the lesion. In addition, the observations indicate that there are differences between the efficacy of the bile, of the pancreatic juice and of the secretion of the duodenum itself in inhibiting ulcer formation. Sixty healthy dogs were used in the investigation. The pylorus was severed and the gastric and duodenal ends were closed; continuity of the gastro-intestinal tract was then reestablished by an anterior gastrojejunostomy. The animals were divided into four groups, one of which, consisting of twenty dogs, served as controls. In a second group of ten dogs the accessory pancreatic ducts were ligated and severed and the main pancreatic duct was transplanted into the terminal portion of the ileum. In a third group of twenty dogs the common bile duct was transplanted into the ileum, and in the fourth group both the main pancreatic duct and the bile duct were transplanted into the ileum. Thus the experimental animals differed in only one respect, namely, the presence or absence of bile or pancreatic juice in the duodenum, and hence the contact of these fluids with the gastrojejunal anastomosis.

In the control animals in which only a gastrojejunostomy was performed, typical subacute and chronic ulcer formation was observed near the gastrojejunal anastomosis in 50 per cent of the animals. Ulcers developed in the same location in 70 per cent of the dogs in which the pancreatic duct alone was transplanted, in 90 per cent of those in which the common bile duct alone was transplanted, and in 100 per cent of those in which both the pancreatic and common bile ducts were transplanted. These observations again emphasize the

importance of the alkaline duodenal fluids in inhibiting the development of experimental ulcers of this type and, in addition, appear to warrant the conclusion that, "of all the constituents of the alkaline duodenal juices, bile has the most significant and effective influence in preventing the formation of jejunal ulcer; the duodenal secretion, the succus entericus, is the least important, and the pancreatic juice is midway between the two in this respect." These results add further to the growing mass of evidence that the amount of free acid present in the gastric chyme is a primary factor in the etiology of at least the experimental type of ulcer of the gastro-intestinal tract.

TEST TUBE SYNTHESIS OF SPECIFIC
ANTIBODIES

A quarter of a century ago Carrell and Ingebrigsten¹ of the Rockefeller Institute reported that fragments of guinea-pig bone marrow (or lymph glands) suspended in homologous blood plasma will form specific hemolysins against goat erythrocytes if these foreign red blood corpuscles are added to the culture medium. This apparent test tube synthesis of specific antibodies was consistent with the generally accepted side chain theory of immunity, which was not seriously challenged at that date. Many immunologists were skeptical, however, of the reported results. In attempting to confirm this alleged test tube production of specific antibodies, Kuczynski, Tenenbaum and Werthemann, Sato, Kimura, Bloom and a half dozen others failed.² Sato could find no trace of antibody synthesis in his tissue cultures. A few of his cultures did show traces of apparent antibody production, titers as high as 1:16 being obtained, for example, with 1:4 titers in his control tubes. (Serologic titers of 1:40,000 or even 1:100,000 are readily obtained in intact animals.) Recent experimental studies by Salle and McOmie² of the University of California have led to the quite definite conclusion that "neither precipitins, agglutinins nor hemolysins are produced as a result of the addition of homologous antigens to tissue cultures." The tissues tested by the California investigators were splenic, pulmonary and bone marrow explants from embryonic chickens, guinea-pigs and rabbits.

Several investigators have modified the original Carrel-Ingebrigsten tissue technic. Ludke, Kuczynski, Tenenbaum and Werthemann, for example, injected rabbits and guinea-pigs intravenously with large doses of killed bacteria and made explants from the spleen or bone marrow of the injected animals. These explants contained numerous phagocytosed bacteria. After five days' incubation the antigen laden explants yielded no traces of specific bacterial agglutinins. Przygode,

1. Gastric Acidity and Experimental Ulcer, editorial, J. A. M. A. 107: 2052 (Dec. 19) 1936.

2. DeBakey, M. E.: Peptic Ulceration: The Relative Protective Value of the Alkaline Duodenal Juices, Arch. Surg. 34: 230 (Feb.) 1937.

1. Carrel, Alexis, and Ingebrigsten, R.: J. Exper. Med. 15: 287, 1912.

2. Salle, A. J., and McOmie, W. A.: J. Immunol. 32: 157 (Feb.) 1937. (Extensive bibliography.)

Reiter, Meyer and Loewenthal, and Sato, in contrast, obtained positive evidences of specific agglutinin production by this technic, titers as high as 1:160 being reported in Sato's papers.

Since all this conflicting evidence was obtained by application of the earlier, relatively crude, methods of tissue culture a reinvestigation of the entire problem seemed desirable. Landsteiner and Parker² of the Rockefeller Institute therefore transplanted fragments of adult rabbit spleen into the most favorable modern tissue culture medium thus far developed. This medium consisted of three parts of normal (autogenous) rabbit serum, one part of isotonic sodium bicarbonate (1.4 per cent) and two parts of Tyrode's solution containing four times the usual amount of dextrose, to which was added 0.005 per cent of phenol red to serve as an indicator. Each flask was supplied daily with an atmosphere consisting of 80 per cent oxygen, 8 per cent carbon dioxide and 12 per cent nitrogen. This medium and method of cultivation preserves a splenic fragment in a high degree of functional activity without stimulating excessive proliferation of its cytologic elements.

The New York investigators found that fragments of adult rabbit spleen removed from the animals two to three days after intravenous injections with guinea-pig erythrocytes almost invariably produce hemagglutinins for guinea-pig red blood corpuscles, titers often reaching 1:320. Control tests with duplicate cultures kept at 4 C. showed no hemagglutinin production. The New York investigators, however, were surprised to find that under the same cultural conditions splenic fragments taken from rabbits injected from one to twenty-four hours previously failed to produce demonstrable antibodies. This indicates that the production of antibodies by splenic explants depends on certain preparatory adaptations occurring in intact animals, which reactions are not completed till the second or third day after intravenous injection of a given antigen. Spleens taken from animals injected twenty-four hours previously and cultivated in fully prepared serum (i. e., serum taken from control rabbits injected three days previously) also yielded negative results. This indicates that serologic preparation or adaptation alone is not sufficient to insure *in vitro* antibody production. The fixed tissues themselves must apparently undergo a supplementary *in vivo* preparation. Parallel injections with nonviable bacterial antigens (e. g., *Vibrio metchnikovii*) confirmed these conclusions.

The authors conclude that, "in view of the positive results obtained when the antigen was allowed to remain from two to three days in the [intact] animal, the negative results obtained when this period was shortened . . . antibody production [must be a much] more complicated process than is usually assumed." No new theory as to the nature of this preliminary *in vivo* preparation of serum and fixed tissue cells, however, is

suggested by these authors. In the light of their results, however, the recently alleged neurologic integration of antibody-producing tissues (or functions) seems worthy of detailed investigation.

SUPERVITAMINOSIS AND TUBERCULOSIS

Much of the present-day commercial exploitation of vitamins and vitamin-rich foods is based on a belief that excessive intakes will increase the resistance of normal persons to microbic infections. Abundant experimental evidence supports the view that prolonged vitamin deficiencies do decrease antimicrobial resistance, but the data regarding the immunologic effects of superabundant vitamins are inadequate. An experimental study of the possible immunologic benefits of superfluous vitamin C has been reported by Heise and Martin¹ of the Trudeau Sanatorium.

Fifteen normal guinea-pigs were fed a stock ration consisting of carrots, hay, lettuce and oats. Five animals were used as controls and were not given additional vitamins. The other ten were given each a daily intra-abdominal injection of 20 mg. of crystalline cevitamic acid in the form of a neutral salt. After a seven day period, both control and vitamin-treated animals were injected with 300,000 tubercle bacilli into the groin. The daily injections of vitamin C were continued in the test group for five more months. No differences were noted in the two groups. At the end of this period one of the control animals died. All the remaining animals were then killed and necropsies performed.

The degree of tuberculosis in each animal was estimated on the basis of a possible maximum 4+ for each organ: lungs, spleen, liver and lymph nodes. Averaging the results gave a severity of 3+ for the control animals and of 2.2+ for the vitamin-treated group. Enlarged inguinal glands with marked caseation were found in both. The spleen was enlarged in both and thickly studded with tubercles, as was the liver. The lungs were involved to a lesser extent in both the treated and untreated groups.

Those observations were interpreted as establishing the fact that no significant differences exist between the extent and spread of experimental tuberculosis in guinea-pigs on a normal diet and in those having an excessive intake of cevitamic acid. Two possible criticisms of the experimental methods were recognized: The relatively large dose of tubercle bacilli might have masked slight differences in resistance, or undetected differences might have been shown by a study of the survival time, provided a sufficiently large number of animals for statistical reliability had been available. The results, nevertheless, are interesting because of their failure to demonstrate any experimental support for excessive vitamin C administration in tuberculosis.

1. Heise, F. H., and Martin, G. J.: *Proc. Soc. Exper. Biol. & Med.* 35: 337 (June) 1936. Reprinted in the *Fifty-Second Annual Medical Report of the Trudeau Sanatorium*.

2. Parker, R. C.: *Science* 85: 292 (March 19) 1937.

Current Comment

COORDINATION OF ARMED AND CIVILIAN MEDICAL SERVICES

There seems at this time to be but little evidence that pacifism is gaining or that the campaign against wars is making appreciable progress throughout the world. It is more difficult, says Armstrong¹ in a recent article on this subject, for the civilian physician than it is for a member of the naval or military medical services to contemplate war. If war does come, medicine or the lack of it will, as it always has, play an extremely important part in the outcome. In past centuries, indeed, the lack of adequate medical service has destroyed more armies than have been destroyed by armed forces. While in the last war this was no longer true, medical preparedness must recognize the fact that future wars will not be waged exactly like the last one. The element of surprise and the unpreparedness of the defender play an important part in the medical problems of any nation. Moreover, it is already clear that in future conflicts civilian populations will suffer severely either directly or indirectly. Poison gases and demolition bombs, which are the two most effective weapons of bombardment aviation, will probably be utilized to a great extent; hence civilian physicians become immediately as important as members of the regular medical services. Armstrong recommends therefore that civilian physicians prepare themselves for wartime rôles by enlistment in the active reserves or by individual efforts to coordinate the work of the two branches of medicine. The latter objective can best be obtained through the medical and dental schools, the local and state health boards, the medical societies, special organizations, the Veterans' Administration, the U. S. Public Health Service and the organized reserves and National Guard.

NEUROGENIC THEORY OF ANAPHYLAXIS

Earlier immunophysiology assumed that allergic and immune reactions are initiated by the central nervous system or at least mediated through it. Recently Metalnikov¹ of the Pasteur Institute, Paris, reasserted his belief that in immunizing laboratory animals we are immunizing principally a hypothetic "immunity center" in the central nervous system, which in turn "directs the sensitivity of peripheral tissues." From this theory several European clinicians have concluded that therapeutic blockade or surgical interruption of the connection of the "immunity center" with peripheral tissues would prevent anaphylactic reactions in these tissues. Such a blockade has been attempted by alcohol injections² and by regional sympathectomy.³ Most immunologists are convinced that local anaphylaxis is wholly independent of central nervous connections. Ajo and Arthus⁴ of the Laboratory for Organotherapeutic Research, Garches, France, for example, have recently retested this belief so far as it relates to the local

anaphylactic reaction technically known as the Arthus phenomenon in rabbits. First they studied the effects of unilateral resection of the sciatic nerve in hypersensitive rabbits. They found that the Arthus reaction takes place with the same promptness and severity in the leg thus deprived of all sensory, motor and "trophic" connection with the central nervous system as in the control leg. To test the effects of sympathetic innervation, these investigators removed the left cervical ganglion in hypersensitive rabbits, causing sympathetic paralysis of the left ear. Both ears were then tested by subcutaneous injection with the same dose of specific foreign protein. The Arthus phenomenon occurred with equal promptness and equal severity in the two ears, the only observed difference being a slightly more rapid recovery on the sympathectomized side, presumably because of the hyperemia and hyperthermia of the paralyzed ear. The authors do not assume that this slightly accelerated rate of recovery is of practical clinical significance.

THE HYPOPHYSIS AND IMMUNITY

Clinical observation has suggested a relationship between hypophyseal function and immunity, characterized, for example, by a statistically subnormal antimicrobial resistance in acromegaly and an increased resistance in Cushing's disease.¹ Experimental confirmation has been recently reported by Churg² of the Institute for General and Experimental Pathology, Vilna, Poland. Confirming the previous investigations by Druckrey,³ he found that daily intravenous injections of the gonadotropic substance from human pregnancy urine were without apparent effects on the blood coagulation time of male rabbits. In normal female rabbits, however, the same substance caused a transient decrease in blood coagulability followed by shortening of the coagulation time. The increased coagulability persisted for several weeks after cessation of the injections. No similar results were observed in parallel tests of ovariectomized female rabbits. Females given daily subcutaneous or intravenous injections had an initial 100 per cent increase in serum complement titer, followed by a fall to about 50 per cent of the normal. This subnormal titer persisted for several weeks after cessation of the injections. No effects were demonstrable in the complement of male rabbits or in ovariectomized females. Churg concluded that the gonadotropic substance of pregnancy urine acts indirectly on the serum through stimulation of the female sex glands. Partial confirmation of this view was obtained by the injection of estrogen into ovariectomized females, which caused typical fluctuations in blood coagulability and complement titer. Progesterin injections, however, were without demonstrable effect. Churg's tentative explanation of the observed effects is based on Fuchs's⁴ theory of the identity of prothrombin and "komplementmittelstück." The greater the extent of transformation of prothrombin into thrombin, the less prothrombin is available for complement action.

1. Armstrong, H. G.: The Importance of Coordinating the Military and Naval Medical Services with the Civilian Medical Profession, *Mil. Surgeon* 80:171 (March) 1937.

1. Metalnikov, S. I.: Rôle du système nerveux dans l'immunité, Paris, Masson & Cie, 1934, p. 151.

2. Levin, G. L. L.: *Lancet* 2:249 (Aug. 4) 1934.

3. Godard, H.: *Presse méd.* 43:1220 (July 31) 1935.

4. Ajo, Corrado, and Arthus, André: *Compt. rend. Soc. de biol.* 124:1045, 1937.

1. Höring, F. O.: *Ztschr. f. klin. Med.* 120:627, 1936.

2. Churg, J.: *Ztschr. f. Immunitätsforsch.* 89:488 (Dec.) 1936.

3. Druckrey, H.: *Endocrinologie* 12:1, 1933.

4. Fuchs, H. J.: *Ztschr. f. Immunitätsforsch.* 69:330, 1930.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE EIGHTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 7-11, 1937

(Continued from page 2145)

HOUSE OF DELEGATES

Second Meeting—Tuesday Morning, June 8

The House of Delegates was called to order at 9:45 a. m. by the Speaker, Dr. Nathan B. Van Etten.

Roll Call

It was moved by Dr. A. T. McCormack, Kentucky, seconded by Dr. William D. Johnson, New York, and carried, that the House dispense with the roll call.

Presentation of Minutes

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. A. T. McCormack, Kentucky, and carried, the House dispensed with the reading of the minutes.

Report of Reference Committee on Credentials

Dr. Benjamin F. Bailey, Chairman, reported that additional delegates had been registered since the previous report of the committee, making a total registration of 165. He requested several members of the House who had not signed attendance slips to do so immediately.

Report of Board of Trustees

Dr. Austin A. Hayden, Secretary of the Board of Trustees, presented the following report of the Board, which was adopted on motion duly made, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried:

Resolutions Recommending Establishment of Council on Medical Ethics and Economics introduced by Dr. Carl F. Vohs, Missouri: The Association already has a Bureau of Medical Economics and a Judicial Council. The Board of Trustees suggests that, if the changes outlined in the resolutions are desired, suitable amendments to the Constitution and By-Laws should be introduced in the prescribed manner.

Resolution on Production of Educational Films introduced by Dr. C. A. Dukes, California: The Board has already studied the question of the education of the public with motion picture films and will be glad to give consideration to future needs in this respect as they arise.

Resolution on Program of Public Education introduced by Dr. Fred Moore, Iowa: Here again the Board would report that it has given long and earnest consideration to the development of a program of public education. The Bureau of Health and Public Instruction has developed an extensive program for the education of the public, and its efforts along this line have been approved by the House of Delegates. The Board of Trustees will be glad to give consideration to further development of this plan as the need arises.

Resolution on Investigation into Conduct of Magazine *HYGEIA* introduced by Dr. Walt P. Conaway, New Jersey: The Board would report that it has constantly endeavored to guard against the abuses recited in this resolution. It has ever been the policy of *HYGEIA* to instruct the public in sound medical science and particularly as to the value and importance of the physician in procuring suitable medical care. The Board is glad to take this opportunity again to reiterate its policy in this respect.

Resolution on Review of Motion Picture Films introduced by Dr. Thomas P. Farmer, New York: The Board of Trustees respectfully suggests that it has established in the headquarters office a Bureau of Exhibits which has available information concerning scientific films of value for those wishing such information. In cases in which films are used to

exploit medicaments or physical apparatus, the Council on Pharmacy and Chemistry and the Council on Physical Therapy may be asked for an opinion concerning the products mentioned.

Resolutions on Presentation of Exhibit of the American Medical Association at San Francisco International Exposition introduced by Dr. Elbridge J. Best, California: As plans become more mature, the Board of Trustees will gladly consider the cost and the advisability of an exhibit at the San Francisco International Exposition as these matters are presented.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Floyd S. Winslow, Chairman, presented the following report:

REPORT OF BOARD OF TRUSTEES

1. Dr. Charles Gordon Heyd, President: Your committee joins with the Board of Trustees and the Members of the American Medical Association in regretting the untimely death of Dr. James Tate Mason, President of this Association. It approves the action of the Board of Trustees in electing as President the Vice President, Dr. Charles Gordon Heyd, and it commends Dr. Heyd for his faithful performance of the many presidential duties during the past year.

2. Business Operations: The increase in gross earnings and miscellaneous income and the increase in expenditures for wages, salaries and other items reflect the widening of the activities of the Association in advancing the interests of its membership and meets with the approval of this committee.

3. Building and Equipment: Additions to building and equipment have kept pace with the increased demands of the work of the Association and are approved of by this committee, which furthermore approves of the contemplated additions to the equipment.

4. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION: Your committee congratulates THE JOURNAL on maintaining its leadership in its field of medical publication. It commends the management of THE JOURNAL for its foresight in the publication of "The Pharmacopeia and the Physician." It feels that this department has been serviceable to the membership and is in favor of the cooperation existing between THE JOURNAL and the United States Public Health Service in the work on venereal diseases. It is also in favor of the work of THE JOURNAL in the correspondence with other countries on the subject of economic and social relations of medical practice and commends the intensive development of the Department of Queries and Minor Notes and the efforts put forth to maintain high standards in medical education and practice.

5. Special Journals: The publications covering dermatology and syphilology, neurology and psychiatry, pediatrics, internal medicine, surgery, pathology, ophthalmology and otolaryngology are of the highest character and should be sources of great pride to the Association and to the respective specialties because of their completeness, usefulness and the clean character of their advertising pages. The growing competition in these fields of other journals by commercial concerns not maintaining advertising standards comparable to those of the periodicals of this Association is viewed with genuine alarm, since subscription support is thereby withdrawn in some measure from these journals. This is particularly noticeable in one periodical formerly published at a profit and now at a marked loss. At the present time your committee has reason to believe at least one certain specialty whose periodical is now operating at a loss contemplates the launching of a new journal to be pub-

lished by a commercial house. Your committee feels that this is most regrettable and whole-heartedly agrees with the Board of Trustees in issuing its warning that if the members of the specialties do not give their whole-hearted support to their journals it may become necessary to consider seriously the advisability of suspending publication of those special journals responsible for the large part of the losses incurred.

6. **HYGEIA:** Your committee feels that *HYGEIA* furnishes a constant and valuable source of information to its readers. The financial loss to the Association through the publication of this periodical in 1936 was less than half the loss during 1935. Your committee recommends that the publication of *HYGEIA* be continued.

7. **The Library:** Your committee recognizes in the Library one of the vital activities of our organization. It approves the provision of larger quarters for the Library and for increased activities in this department.

8. **Cooperative Medical Advertising Bureau:** Your committee is glad to note the wide support this bureau is receiving from the majority of the constituent medical associations and recommends that other state journals take steps to ally themselves with this department.

9. **Division of Food, Drugs and Physical Therapy:** Your committee commends the formation of this division and the creation of a committee on policy representing the three councils and believes that this plan will increase the efficiency of the work of these councils.

10. **Council on Pharmacy and Chemistry:** Your committee views with interest the ever increasing work of the Council on Pharmacy and Chemistry; it feels that this council renders valuable service to our membership by its investigations, and it recognizes the difficulties in connection with the selection of names for newly discovered therapeutic agents, particularly in the nomenclature of endocrine principles. Your committee is sensitive to the value of the work done on investigation of catgut sutures and nonspecific protein therapy. It approves the efforts of the Council and recommends that they be continued. This council deserves and should have the whole-hearted support of the medical profession in its efforts to maintain rationalism in the field of therapy.

11. **Council on Physical Therapy:** Your committee feels that one of the most important functions of the Association is the investigation and publication of reports on the use of physical therapy apparatus by this council. It also looks with favor on the educational activities of this council in its work with our constituent state and component county societies, whose members have received information of value by this means.

12. **Council on Foods:** Your committee feels that the efforts of this council tend to maintain high standards for food products and also improvement in the nature of advertising them. The reports on the nutritional significance of various classes of foods are of value to the general practitioner of medicine. During the past year the reports on the vitamins have been especially helpful.

13. **Chemical Laboratory:** The work of this laboratory continues to be of great value to our organization from the standpoint of its independent investigations and investigations of matters referred to it by the Council on Pharmacy and Chemistry and the Bureau of Investigation.

14. **Bureau of Investigation:** Your committee feels that the Bureau of Investigation has been of important assistance to the federal government and to better business bureaus and urges the continuance of this department.

15. **Bureau of Exhibits:** Your committee emphasizes the desirability of the continuance of the work of the Bureau of Exhibits in cooperation with the work of the Committee on Scientific Exhibit.

16. **Extension of Medical Service to the Indigent:** Your committee approves the attitude of the Board of Trustees in announcing its willingness with other organizations to make plans for providing medical service to the indigent.

17. **Motion Picture on Syphilis:** Your committee feels that the cooperation of the American Medical Association with the United States Public Health Service for better control of venereal disease is desirable.

18. **Report of the Committee to Study Air Conditioning:** In view of the importance of further study of air conditioning your committee recommends that the investigation of this committee be continued.

19. **Report of the Committee on Asphyxia:** Your committee recommends that the report of the Committee on Asphyxia be accepted and that the power requested be granted, with the exception that there be omitted from the report the following: "Your committee suggests the desirability of taking over the work and carrying on the program initiated and maintained for the last four years by the Society for the Prevention of Asphyxial Death. Informative material accumulated by this organization might be filed by the committee for the use of the Association and contacts with organizations and groups interested in the prevention of asphyxial death may be preserved and developed."

REPORT OF SECRETARY

The lucid report of our ever faithful Secretary deserves hearty commendation. The disparity that exists between "members" and "Fellows" suggests the wisdom of frequent appeal to "members" to become "Fellows," in order to increase the solidarity of our organization.

Substitution of the Organization Section of *THE JOURNAL* for the *BULLETIN* should be continued for another year to determine whether the new order of publication will fulfil its purpose.

The Annual Conference of Secretaries of Constituent State Medical Associations is indorsed. In event of an expectant absence of a state secretary from these gatherings, provision should be made to send the duly authorized alternate, as the loss to a given state society cannot be atoned for until the following year. Agenda could readily include topics for discussion, not fully decided by the House of Delegates, thereby paving the way for future action by the House.

The untiring work of the Secretary and his personnel in maintaining personal relation with county societies and with the humblest members of the American Medical Association serves to exemplify the finest traditions of our organization and your committee hereby commends our Secretary and his assistants on the completion of another successful year's work for our membership.

Respectfully submitted.

FLOYD S. WINSLOW, Chairman.
ARTHUR C. MORGAN.
C. L. CUMMER.
J. F. SILER.
MCLAIN ROGERS.

On motions duly made, seconded and carried, the report of the reference committee was adopted section by section and as a whole.

Invitation to Hon. J. Hamilton Lewis

Dr. W. C. Woodward, Director, Bureau of Legal Medicine and Legislation, reported that in accordance with instructions he had communicated with Hon. J. Hamilton Lewis, United States Senator from Illinois, who stated that he would be glad to appear before the House of Delegates on Thursday or Friday, June 10 or 11.

After discussion of a motion to invite Senator Lewis to appear before a special session of the House on Thursday morning, June 10, the matter was referred to the Reference Committee on Executive Session.

Report of Reference Committee on Reapportionment

Dr. Walter F. Donaldson, Chairman, presented the following report, which was adopted on motion of Dr. Donaldson, seconded by Dr. H. B. Everett, Tennessee, and carried:

The present apportionment of delegates is on the basis of one delegate for each 775 members or fraction thereof. Each constituent association is represented by at least one delegate irrespective of the number of members.

The By-Laws specifically provide that the total membership of the House of Delegates shall not exceed 175. The total membership of the Association on April 1, as recorded in the office of the Secretary, was 105,460.

An apportionment on the basis of one delegate for each 800 members would produce a total of 178 delegates, three more than are permitted by the By-Laws.

On the basis of one delegate for each 825 members, the total membership of the House would be 174, which is two more than the present membership. On this basis, Massachusetts and the Philippine Islands would each gain one delegate, New York would gain two delegates, and Missouri and Oklahoma would each lose one delegate.

On the basis of one delegate for each 850 members, the total membership of the House would be 170. On this basis, New

Number of Delegates Based on Different Ratios

State	Number of Members, 4/1/37	Bases of Apportionment and Number of Delegates Under Each	
		825	850
Alabama.....	1,472	2	2
Arizona.....	316	1	1
Arkansas.....	1,051	2	2
California.....	5,695	7	7
Colorado.....	1,139	2	2
Connecticut.....	1,543	2	2
Delaware.....	188	1	1
District of Columbia.....	183	1	1
Florida.....	1,178	2	2
Georgia.....	1,807	3	3
Idaho.....	257	1	1
Illinois.....	7,287	9	9
Indiana.....	2,958	4	4
Iowa.....	2,416	3	3
Kansas.....	1,529	2	2
Kentucky.....	1,712	3	3
Louisiana.....	1,328	2	2
Maine.....	700	1	1
Maryland.....	1,379	2	2
Massachusetts.....	4,962	7	6
Michigan.....	3,742	5	5
Minnesota.....	2,347	3	3
Mississippi.....	965	2	2
Missouri.....	3,201	4	4
Montana.....	339	1	1
Nebraska.....	1,069	2	2
Nevada.....	101	1	1
New Hampshire.....	455	1	1
New Jersey.....	3,193	4	4
New Mexico.....	236	1	1
New York.....	15,047	19	18
North Carolina.....	1,581	2	2
North Dakota.....	387	1	1
Ohio.....	5,361	7	7
Oklahoma.....	1,324	1	1
Oregon.....	755	1	1
Pennsylvania.....	8,585	11	11
Tennessee.....	458	1	1
Texas.....	874	2	2
Utah.....	323	1	1
Vermont.....	1,069	3	2
Virginia.....	4,159	6	5
Wyoming.....	416	1	1
Alaska.....	376	1	1
Hawaii.....	1,725	3	3
Isthmian Canal Zone.....	1,398	2	2
Philippine Islands.....	1,194	2	2
Puerto Rico.....	2,349	3	3
United States Army.....	143	1	1
United States Navy.....	87	1	1
United States Public Health Service.....	257	1	1
1 for each Scientific Section.....	95	1	1
		15	15
		174	170

The total voting membership of the House of Delegates shall not exceed 175.

York and the Philippine Islands would each gain one delegate, while Missouri, Oklahoma, Tennessee and Texas would each lose one.

The committee recommends that the apportionment of delegates for the next three years be made on the basis of one delegate for each 825 members or fraction thereof. Each state medical association, irrespective of the number of members, no matter how small its membership may be, is entitled to one delegate. On this basis, the membership of the House will be 174.

Respectfully submitted.

WALTER F. DONALDSON, Chairman.
H. B. EVERETT.
CHARLES J. WHALEN.
N. B. VAN ETEN.
OLIN WEST.

Report of Reference Committee on Sections and Section Work

Dr. James E. Paullin, Chairman, presented the following report:

Mr. Speaker and Members of the House of Delegates:

1. Your Reference Committee on Sections and Section Work has studied with interest and pride the report of the Council on Scientific Assembly.

Your committee commends the activity of the Council for the meticulous care used in the selection of subjects and the preparation of the program which has been furnished for the general scientific sessions and for the various section meetings. Such a well balanced program evidences the general interest of the Council in stimulating and advancing medical science and supplying useful and timely information.

2. Perusal of the program of the Scientific Assembly gives evidence of the importance of the scope and range of the activities of the Council in furnishing this short postgraduate course of instruction in general medicine, surgery and the various specialties. One is impressed with the fund of information available in the various sectional and general meetings.

3. In particular, your committee commends the innovation this year of a division of the general sessions program on Tuesday into a section devoted to the discussion of general medical topics and a section devoted to a discussion of outstanding surgical problems. Such a division gives promise of increasing the function of the general sessions within the time normally allotted the scientific program.

4. In view of the recent nation-wide interest manifested in venereal diseases, your committee commends the Council on Scientific Assembly for presenting a Symposium on Syphilis.

5. Your committee again calls attention to the wealth of material available in the Scientific Exhibit. A study of the Exhibit offers an easily assimilable summary of the present day advances in medicine and surgery.

6. Referring to the comments of the Council on Scientific Assembly concerning a proposed change in the By-Laws of the American Medical Association, namely, section 13, chapter XIV: "A Fellow shall present no more than one paper at any Scientific Assembly," a study of the minutes of the 1936 session of the House of Delegates reveals that no such amendment to the By-Laws was offered for consideration. Your committee believes that the purpose of the suggestion previously made was to give an opportunity to a greater number of Fellows to appear on the program of the sections. Your committee strongly urges that in the preparation of section programs the name of a Fellow either to present or to discuss a paper appear only once. This has no reference to the general scientific program.

7. The resolutions from the Section on Obstetrics, Gynecology and Abdominal Surgery request a change in name of a section which would necessitate a change in By-Laws and is without the jurisdiction of this committee. Your committee recommends that the resolutions be referred to the Council on Scientific Assembly for action, with the recommendation from this committee, however, that the request of the section be granted.

Respectfully submitted.

JAMES E. PAULLIN, Chairman.
ARTHUR J. BEDELL.
ELBRIDGE J. BEST.
CHARLES R. SCOTT.

On motions of Dr. Paullin, duly seconded and carried, the report of the reference committee was adopted section by section and as a whole.

Report of Reference Committee on Hygiene and Public Health

Dr. James Q. Graves, Chairman, presented the following report:

1. Resolutions on the Family Physician and the School Child introduced by Dr. Burt R. Shurly, Section on Laryngology, Otolaryngology and Rhinology: Your committee has carefully considered these resolutions and with the approval and consent of

Dr. Shurly, who introduced them, submits the following substitute resolutions:

WHEREAS, The family physician has labored for these many years without full recognition of his valuable services; and

WHEREAS, The various school systems of the United States depend on the family doctor for the prevention and diagnosis of disease and the protection of the public; therefore be it

Resolved, That the school boards and authorities in charge of the school systems all over our country be respectfully requested to enter and file on the index card of every school child the name and address of the chosen family doctor; and be it further

Resolved That the designated family doctor, together with the parents or guardians of the child, be informed by the proper school authorities of any accident or illness that may befall the child in the schools of this country; and be it further

Resolved, That it be recommended to the school authorities that the regular physical examinations of school children be made by the family physician whenever the parents desire, on forms provided by the school or health authorities, and that these examinations be accepted by the public authorities in lieu of examinations made by the school physician; and be it further

Resolved, That it be recommended that all records of health examinations accompany the scholastic record of the child as he passes from grade to grade; and be it further

Resolved, That the provisions of these resolutions be brought to the attention of the secretary of each state medical society and that he in turn inform the secretary of each local medical society.

2. Resolution on Importance of Preventive Medicine presented by Dr. Terry M. Townsend, New York: Your committee has considered this resolution and recommends its adoption.

3. Report of Board of Trustees on Motion Picture on Syphilis: Your committee has read the report of the Board of Trustees concerning the Motion Picture on Syphilis as printed on page 110 of the Handbook and recommends the adoption of the report.

JAMES Q. GRAVES, Chairman.

L. B. BATES.

W. F. DRAPER.

MEREDITH MALLORY.

G. H. MUNDT.

Section 1 of the report of the reference committee was referred back to the reference committee for a subsequent report, on motion of Dr. H. A. Luce, Michigan, seconded by Dr. George M. Fisher, New York, and carried.

On motions, duly seconded and carried, the second and third sections of the report of the reference committee were adopted.

It was moved by Dr. Graves, seconded by Dr. A. T. McCormack, Kentucky, and carried, that the report be adopted as a whole, with the exception of the first section, which had been referred back to the committee.

Report of Reference Committee on Medical Education

Dr. F. S. Crockett, Chairman, presented the following report:

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Your Reference Committee on Medical Education, having read the report in the Handbook, and supplementary reports, wishes to commend the Council on Medical Education and Hospitals for its splendid work as evidenced by the marked improvement in the facilities of medical schools and the higher standards obtained for medical education.

Special attention is directed to the report on those schools giving only the first two years of basic medical sciences. While improvement of these schools has shown commendable progress, yet the problem of transferring from a school of basic medical science to a clinical school for completion of a medical education presents increasing difficulties and is a matter of serious concern to prospective medical students.

The annual census of hospitals met with response from 96 per cent of those registered. It is of interest to learn that, while only 939 hospitals are approved for internship and residencies, these approved institutions accommodated more patients than the 5,250 hospitals that are registered but not approved for intern training.

Attention is also called to the 3,612 hospitals existing in this country not approved by the Council or by the College of Surgeons. Your committee urges that some way be found to inspect and grade these institutions in the interest of the public welfare.

It is encouraging to learn that the Board of Trustees has authorized additional assistance to the Council for inspection. Another point of interest shown by the report is the commendable improvement in the percentage of necropsies stimulated largely through the activities of the Council. In 1926 only 249 hospitals were able to report 15 per cent or more of necropsies, while nine years later, 1935, some 692 hospitals had attained this average. Too much stress cannot be placed on the necropsy because of its educational value.

Your committee notes that a revised list of "Approved Colleges of Arts and Sciences and Junior Colleges" has been published this year. It is the opinion of your committee, however, that in at least some colleges premedical students should be afforded better actual medical contacts. Your committee would urge that the premedical adviser in each college offering a premedical course keep in close touch with the Council on Medical Education and Hospitals.

The report properly directs attention to the overcrowded conditions existing in mental hospitals. It is of especial interest to note that there is a definite relationship between overcrowding and the discharge and parole rate, showing a definite advantage in psychiatric treatment in those institutions in which sufficient space and adequate facilities are provided.

To give the Council time for further study of the five year period of training now required for certification by the specialty boards, your committee approves the proposed extension to Jan. 1, 1942, of the date on which this requirement becomes effective.

Your committee approves the Council's proposed study of graduate medical education now in process of formation. The evident advantage of well organized and wisely planned methods of making available to the practicing physician the latest developments of medical science must be obvious to all.

RESOLUTION REQUIRING PHYSICIANS ON STAFFS OF ACCREDITED HOSPITALS TO BE MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The idea underlying the resolution introduced by Dr. John Z. Brown Sr., Utah, in behalf of the Utah State Medical Association calling for membership in the county medical society of all hospital staff members is being administered now by the Council on Medical Education and Hospitals, pursuant to a resolution introduced and approved by this House of Delegates at the Cleveland session in 1934. It is interesting to learn that hospitals generally have cooperated with the spirit of this resolution.

RESOLUTIONS ON CLARIFYING POLICY OF THE AMERICAN MEDICAL ASSOCIATION ON QUESTION OF GROUP HOSPITALIZATION

Your committee believes that, for the purposes contemplated in the resolutions introduced by Dr. C. W. Stone, Ohio, as resolutions adopted by the house of delegates of the Ohio State Medical Association regarding problems from group hospitalization contracts, it is advisable to define hospital facilities rather than to attempt a comprehensive definition of medical practice.

It is recommended therefore that the contract benefit provided by group hospitalization insurance should be limited to the room, bed, board and nursing facilities ordinarily provided by hospitals, routine drugs, and the routine services of interns only when acting under the direction of the attending physician.

Except as stated above, the contract should not include the services of physicians either general or special. The term physician as used here shall be understood to include all licensed practitioners holding the degree of doctor of medicine and all others who assume on their own account to interpret laboratory findings in terms of disease and diagnosis or to administer or direct treatment.

RESOLUTION REQUESTING THE NORTH CENTRAL ASSOCIATION OF COLLEGES TO AMEND ITS MANUAL

Your committee has considered the resolution offered by Dr. T. R. K. Gruber, Michigan, in behalf of the Michigan State Medical Society, calling attention to certain health service requirements, set forth in the manual of accrediting procedure of the North Central Association of Colleges and Secondary Schools and to which exception is taken.

Your committee is in accord with the idea contained in this resolution and endorses the first paragraph of the summary published on page 95 of the Handbook as it applies to this resolution.

Your committee would urge that the North Central Association of Colleges and Secondary Schools modify its manual of accrediting procedures to permit each member institution to adopt its own health service in conjunction with its own county medical society and to comply with the principles enunciated in paragraph 1 of the summary published on page 95 of the Handbook.

Respectfully submitted.

F. S. CROCKETT, Chairman.
GEORGE BLUMER.
J. T. CHRISTISON.
C. A. DUKES.
W. E. VEST.

On motions, duly seconded and carried, the report of the reference committee was adopted section by section and as a whole, with the exception of that portion of the report referring to the Resolutions on Clarifying the Policy of the American Medical Association on the Question of Group Hospitalization, which was referred back to the reference committee.

Report of Reference Committee on Executive Session

Dr. Thomas A. McGoldrick, Chairman, presented the following report, which was adopted on motion of Dr. McGoldrick, seconded by Dr. Horace Reed, Oklahoma, and carried:

Your committee recommends that the time for hearing Hon. J. Hamilton Lewis, U. S. Senator from Illinois, be fixed for 11 a. m., Thursday, June 10.

Report of Reference Committee on Reports of Officers

With the Vice Speaker, Dr. H. H. Shoulders, Tennessee, presiding, Dr. Wingate M. Johnson, Chairman, presented the following report, which was adopted section by section and as a whole on motions, duly seconded and carried:

Your Reference Committee on Reports of Officers feels that all the addresses were of an unusually high order.

1. Address of the Speaker: The Speaker in his address paid a high tribute to the personnel of the House of Delegates. He also justly placed the responsibility for the policies of the American Medical Association on the members of the House, who are selected to represent the various members of the American Medical Association throughout the United States. He recognized the service of thirty-six veteran members of the House and also established a good precedent by introducing the seventeen new members.

2. Address of the President: The President's address was an excellent discussion of the present status of medicine in this period of social upheaval. He called attention to the fact that medicine was constantly making progress—is not static but dynamic.

Your committee commends his pertinent observation that society may be divided into four main groups, of which the wage earners have the greatest political power and are being exploited by astute politicians. He issues a timely warning against sabotage by "groups on the fringe of the profession."

Your committee recommends a careful study by all physicians of the eleven propositions laid down at the close of the address. It feels, however, that some of these propositions are problems for local communities and that the acceptance of government subsidies involves such basic principles that it should be considered most carefully. Your committee also feels that care should be taken to safeguard a great group of our profession who have contributed so much to its progress, namely, the radiologists and clinical pathologists.

3. Address of President-Elect: In his address the President-Elect called attention to the vast differences in the populations in our various states, in race, in distribution and interests—forming "insurmountable obstacles to providing a standardized practitioner or a single standardized type of medical practice." He recognizes that changes in medical practice are best accomplished through evolution rather than revolution. Your committee wishes to commend the two objectives of organized

medicine that he suggests: first, an extension of postgraduate instruction and, second, the education of the public along medical lines.

WINGATE M. JOHNSON, Chairman.
J. N. HUNSBERGER.
R. L. SENSENICH.
J. F. SMITH.
G. W. WELLS.

Reference Committee on Miscellaneous Business

Dr. J. D. Brook, Chairman, presented the following report, which was adopted on motion of Dr. Brook, seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried:

Your committee has given diligent and thoughtful consideration to the Report of the Committee to Study Problems of Motor Vehicle Accidents appointed by the President at the Kansas City session and in the main it agrees and approves of the conclusions.

While we are all cognizant of the various conditions and situations which contribute to traffic accidents, particularly those mentioned in the report, your committee feels that the causes which are attributed to the physical and mental phase of the question are greatly in the minority and that, this being so, the responsibility of the medical profession does not go beyond making recommendations for curbing of driving by mental and physical defectives. Your committee therefore sincerely approves the paragraph advocating a standard drivers' license law and urges the legislative committees of the various state societies to extend their activities to this end.

And although your committee is not opposed to a symposium on the various phases of traffic accidents, it feels that we would be trespassing on a subject which is not broadly within our domain and therefore that, unless such a symposium could be conducted by experts who have daily contact with traffic accidents and who have given study to the subject, it would be of little value.

Your committee is further of the opinion that traffic morbidity and mortality can be greatly reduced by law enforcement. This contention is based on the fact that most accidents are caused by the smart, in-and-out, take-a-chance driver and the ignorant driver. Your committee therefore sincerely believes and recommends that, because of the general apathy toward the obedience of any law, the primary, individual and collective objective to reduce traffic accidents should be the rigid enforcement of the present law.

Respectfully submitted.

J. D. BROOK, Chairman.
H. L. BRYANS.
WALT P. CONAWAY.
C. S. SKAGGS.
C. W. WAGGONER.

Message from American Dental Association

Dr. Charles Gordon Heyd, President, read the following telegram received from Dr. Leroy M. S. Miner, president of the American Dental Association:

From the forty thousand members of the American Dental Association, greetings to you and to the members of the American Medical Association. Please accept best wishes for a meeting of marked distinction and deep significance for the future of medicine and the health of our people.

On motion, duly seconded by Dr. Arthur T. McCormack, Kentucky, and carried, the Secretary was instructed to send a telegram of formal acknowledgment of this greeting.

NEW BUSINESS

Proposed Amendment to By-Laws

Dr. George Gray Ward, Section on Obstetrics, Gynecology and Abdominal Surgery, in accordance with the wishes of that section, proposed the following amendment to the By-Laws, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend Chapter XIV, Section 1, subhead 3, of the By-Laws, which now reads "Obstetrics, Gynecology and Abdominal Surgery," to read "Obstetrics and Gynecology."

Resolution Approving Creation of Division of Water Pollution Control

Dr. A. T. McCormack, Kentucky, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the American Medical Association approve the passage of the bill (H. R. 2711) to create a division of water pollution control in the United States Public Health Service and for other purposes.

Resolutions on Time and Place of Annual Session

Dr. Walter E. Vest, West Virginia, presented the following resolutions, which were referred to the Board of Trustees:

WHEREAS, The annual sessions of the American Medical Association continue to attract an increasing attendance by the medical profession, so that many sessions now register in excess of 7,000 physicians; and

WHEREAS, the number of cities in the United States fully equipped with a suitable auditorium and a sufficient capacity of rooms in their hotels to accommodate those wishing to attend the session is limited; and

WHEREAS, It has become increasingly difficult to select a place for the annual session fully meeting the requirements and offering a date for the meeting most appropriate to the needs of the medical profession; therefore be it

Resolved, That the House of Delegates request the Board of Trustees between now and the next annual session to secure invitations for the annual sessions of the American Medical Association in 1939, 1940 and 1941 and that these invitations be submitted to the House of Delegates at the annual session of the Association in 1938, with the understanding that the House of Delegates will then select places of meeting for these three sessions and that in accordance with the Constitution and By-Laws the Board of Trustees may by unanimous vote change the place of session sixty days prior to any annual session or again submit the question to the House of Delegates should any contingency arise; and be it further

Resolved, That in 1939 the House of Delegates shall select the place of the annual session for 1942 and thereafter shall annually select the place of the annual session three years in advance of the date of meeting.

Resolution on Investigation of Claims of Osteopathy and Other Sectarian Methods of Practice

Dr. McLain Rogers, Oklahoma, submitted the following resolution, which was referred to the Board of Trustees:

WHEREAS, The claims of osteopathy and other sectarian methods of practice have never been investigated and reported on by any qualified agency in the United States; and

WHEREAS, The persistent exploitation of such claims, including the claim of osteopathy to be on a parity with the nonsectarian practice of medicine in every respect, reacts to the detriment of the public; and

WHEREAS, A demand is now being made by the representatives of osteopathy for the recognition of osteopathy by the United States government through the United States Employees Compensation Commission as equivalent in every respect to the nonsectarian practice of medicine so far as relates to the treatment of diseases and injuries among employees of the federal government; be it

Resolved, That the House of Delegates hereby respectfully requests the Board of Trustees to procure through the United States government an investigation by some unbiased qualified agency of the pretensions of osteopathy and of other allegedly healing cults.

Resolution on Average Daily Census in Hospitals

Dr. Henry A. Luce, Michigan, presented the following resolution, which was referred to the Reference Committee on Medical Education:

The House of Delegates of the Michigan State Medical Society at its 1936 meeting introduced and approved the following resolution: "Whereas, the Council on Hospital Examination of the American Hospital Association requires an average of 75 patients per day in hospitals for approval for intern training, and whereas, when such requirements are met with three interns are allowed, and whereas, such requirements work an injustice on hospitals having between fifty and seventy-five patients, because below seventy-five patients no interns are allowed and above seventy-five three are allowed, therefore, be it resolved that the delegates from the Michigan State Medical Society to the American Medical Association introduce a suitable resolution to lower this standard for approval for intern training to fifty patients per day."

The following resolution is therefore presented:

WHEREAS, The House of Delegates of the American Medical Association realizes the advantages accruing from hospitals approved for internship training having an average daily census of seventy-five or more; and

WHEREAS, It is of the opinion that the well equipped small hospital has distinct advantages; therefore be it

Resolved, That the House of Delegates of the American Medical Association direct the Council on Medical Education and Hospitals to approve hospitals meeting the requirements of the American Medical Association, which have a daily census of fifty.

Dr. Luce explained to the House the reasons for the introduction of this resolution.

Resolution on Evils from Promiscuous Use of Barbituric Acid and Derivative Drugs

Dr. Henry A. Luce, Michigan, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The public is in danger of untoward evil and toxic effects from the promiscuous use of barbituric acid and derivative drugs; and

WHEREAS, The beneficent value of these drugs when used under proper therapeutic supervision is recognized; and

WHEREAS, The procurement thereof is of easy availability in all but a few states; and

WHEREAS, The evils of these drugs include habit formations, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicidal attempts, their improper use being a recognized causative factor in many motor accidents and their improper use being a recognized etiologic factor in some criminal assaults; and

WHEREAS, The laity is unaware of the dangers involved in their promiscuous, unguided use; therefore be it

Resolved, For the protection of the public, that the sale of these drugs be placed under proper governmental control and that the Bureau of Health and Public Instruction be directed to proceed immediately with measures to accomplish this.

Resolution on Campaign Against Syphilis

Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, presented the following resolution, which was referred to the Board of Trustees:

WHEREAS, The record of the United States as regards infection with syphilis appears to be higher than that of many other civilized countries; and

WHEREAS, The United States Public Health Service has initiated a widespread campaign against the prevalence of this condition; and

WHEREAS, The early diagnosis, prevention and adequate treatment of syphilis rest on the physicians of this country; be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to cooperate with the United States Public Health Service in connection with these efforts and do its utmost to carry to physicians the latest available information on these subjects.

Message of Sympathy

Dr. Holman Taylor, Texas, announced that Dr. S. E. Thompson, Kerrville, Texas, was prevented from attendance at the session because of the serious illness of his wife.

On motion of Dr. Taylor, seconded by Dr. Arthur T. McCormack, Kentucky, and carried, the Secretary was directed to send to Dr. Thompson a telegram of sympathy.

Resolution on Contraception from American Neurological Association

Dr. Olin West, Secretary, read the following resolution from the American Neurological Association, which was referred to the Reference Committee on Executive Session:

The committee on contraception of the American Neurological Association, recognizing the important advance that has been made in the matter of the physician's use of contraceptives by the decision of the United States Circuit Court of Appeals for the Second Circuit, Nov. 30, 1936, desires to present the following resolution:

WHEREAS, Because the aforesaid decision of the United States Circuit Court of Appeals has handed down to the medical profession a bill of rights in the field of contraceptive medicine, and because the decision marks the termination of a struggle begun in 1873 to make clear that the federal obscenity laws do not apply to the legitimate activities of the physician, and that he may now prescribe a contraceptive in the interest of life and health; be it

Resolved, That the American Neurological Association urge the American Medical Association again to consider seriously the inroads that are being made on the prestige of organized medicine by the rapid advance of popular thought in the matter of social medical science as evinced by the success of lay organizations in carrying out their program for greater medical freedom in the matter of contraception. It has come to the pass at which the road for medical advance is blazed by laymen assisted by the law. Unless organized medicine is directed by far seeing and free thinking leaders untrammelled by the aged and antiquated fetters of Sophism, it will most certainly come to pass that organized medicine will in the not distant future come entirely under the control of lay and legal administration assisted by their political allies. The American Medical Association is further urged to take up at once the matter of the proper teaching of contraception at the medical schools and the organization of medically supervised contraceptive clinics in hospitals. The time has passed for discussion and debate. The fact remains that the physician is now free to use contraceptives in his practice and should be educated in their use.

The House recessed for ten minutes.

Report of Committee on Legislative Activities

Dr. E. H. Cary, Chairman, presented the following report, which was referred to the Reference Committee on Legislation and Public Relations:

Mr. Speaker and Members of the House of Delegates:

In February your committee met in Chicago, at which time it reported to the Board of Trustees concerning information gained in conference with various agencies in Washington. The view presented at the time was that pending legislation was of such nature that little attention would be directed to legislation affecting medical practice. It was therefore generally agreed that members of the Committee on Legislative Activities would not engage in extraordinary activity in their individual duties but would be alert regarding any new developments. Later, in April, the situation was canvassed, and it was decided that it would be well for the committee to check again any legislation affecting medical practice before Congress and the various bureaus. The following is a brief summary of the contacts made on that occasion:

Veterans' Legislation: Many bills had been introduced, proposing to authorize erection of additional veterans' hospitals for general medical and surgical cases. These bills were still in committee. Your committee was informed by officials of the Veterans' Administration and others in authority that no program was under consideration for the erection of additional hospitals for the purpose named. The introduction of such bills, however, probably may be accepted as indicating a current tending toward the restoration to veterans of the right to hospitalization for any and all disabilities, whether of service origin or not. As yet no such movement has materialized.

There is, however, pending legislation intended to give veterans whose disabilities are due to their own misconduct, and who have heretofore been excluded, equal rights and privileges accorded other veterans. With enactment of such legislation, the veterans benefited would be added to the class now entitled to hospitalization, and it is hard to estimate the increase in number.

Social Security Legislation: Your committee was informed that the Social Security Board was making no special studies on health insurance. Consideration was being given to the feasibility of providing benefits for persons totally disabled, by disease or injury, before attaining the age at which they are entitled to old age pensions. Also they were studying a plan to provide relief for wage earners temporarily prevented by illness or injury from carrying on their usual occupations but who are not entitled to compensation under workmen's compensation acts or occupational disease acts. At present the relief contemplated to be directly provided by the government in both instances seems to be monetary benefits and not medical and hospital services.

Your committee calls the attention of the House of Delegates to the recent decision of the Supreme Court of the United States, which validated most of the Social Security Act. Quite evidently this opens an avenue for new legislation which could involve the profession of medicine. The question of whether the present or any other administration will take advantage of the Supreme Court's decision and develop new social legislation affecting medicine will depend, it is believed, in large measure on the attitude of medical men throughout the United States and the influence they exert on their respective Congressmen. So far, this administration has not publicly expressed a change from the attitude pronounced by the President in his address at the opening of the Medical Center in New Jersey.

Reorganization of Government Departments: In the February report to the Board of Trustees, your committee mentioned the committee on reorganization of government departments. In May, studies were still under way to determine the most efficient plan for reorganizing the executive branch of the federal government. The question of whether one or more new executive departments would be created was still undetermined. Seemingly it was more or less agreed that a place for the Public Health Service would be sought elsewhere than in the Treasury Department. Where it would be placed, and what other of the governmental medical services would be similarly placed, are matters remaining yet to be determined. Your committee has requested the committee on

reorganization to permit it to be heard before any definite decision is reached on this question.

Resettlement Administration Clients: The Resettlement Administration is now an agency of the Department of Agriculture, but the medical problems are in charge of a commissioned officer of the United States Public Health Service. Apparently the Resettlement Administration has no one plan for procuring medical service for its clients. Its general policy seems to be to find in each community the pathway of least resistance. Primarily, the administration is seeking cooperation from state medical associations in asking that they recommend to the component county societies that their respective members adjust medical fees to correspond to the resources of the relief clients. With such cooperation from the state medical association as a basis, it seems that representatives of the Resettlement Administration have been approaching the local medical organizations with a view to procuring the desired adjustment of medical fees. It has been said that the activities of the administration have sometimes gone beyond this and that efforts have been made to induce physicians to fix fees not on the basis of services rendered but at some given amount per annum regardless of the amount of work done. The dangers inherent in this type of contract are evident and it is hoped that objectionable permanence may not be encouraged in meeting an emergency need. Apparently it seems that the plans being formulated by the Resettlement Administration are designed to place the responsibility of medical service for Resettlement Administration clients on the medical profession.

Medical Use of Narcotics: At the Bureau of Narcotics, evidence was submitted that certain physicians played a part in facilitating the development and continuation of narcotic addiction. The apparent apathy of the medical profession in respect to the abuse by physicians of their authority to prescribe and dispense narcotic drugs for professional use was pointed out.

Incidentally, the statement has been made that a similar situation obtains regarding the prescribing of alcoholic beverages. The medical profession does not wish such conditions to exist.

Certainly it can be said that these abuses seem to be limited to very few men in the different states. On other occasions your committee has called your attention to the fact that the licensing authorities in the various states should be more diligent in revoking licenses of practitioners who abuse such privileges. In the instances in which the boards of licensure have no such authority and the wrongdoer has to be tried in a circuit court, seemingly it would be possible to have the law amended. Your committee believes that the great mass of medical men would support such activity on the part of the boards. There is no reason why one or two rotten apples should be permitted, even though we all agree there is no contaminating influence on ethical medical men.

The Secretary of the Treasury introduced a bill proposing to impose certain restrictions on the production, manufacture and use of cannabis and its preparations and derivatives. These are similar to the regulations of the Harrison Narcotic Act on opium and coca leaves and their derivatives and compounds. The duplication of registration, additional taxation and record keeping required by this proposed legislation seems to be without justification. The Harrison Narcotic Act may be easily amended to include cannabis and its preparations and derivatives. There is positively no evidence to indicate the abuse of cannabis as a medicinal agent or to show that its medicinal use is leading to the development of cannabis addiction. Cannabis at the present time is slightly used for medicinal purposes, but it would seem worth while to maintain its status as a medicinal agent for such purposes as it now has. There is a possibility that a restudy of the drug by modern means may show other advantages to be derived from its medicinal use.

Your committee also recognizes that in the border states the extensive use of the marihuana weed by a certain type of people would be hard to control.

Food and Drug Legislation: Since the Seventy-Fifth Congress convened last January, seven bills have been proposed for regulating interstate and foreign commerce in foods, drugs, diagnostic and therapeutic devices and cosmetics. One of these,

commonly referred to as the Copeland bill, was reported by the Committee on Commerce, without a hearing having been given, and promptly passed by the Senate. It is now pending, along with the various bills introduced in the House of Representatives, before the Committee on Interstate and Foreign Commerce of the House. These bills do not seem to provide adequate standards for drugs and for diagnostic and therapeutic devices, or adequate penalties for false or misleading advertising.

The definite weakness of these bills was pointed out. As a committee we have exerted every possible influence to see that a law will be so drawn that it shall be an improvement, rather than a backward step, in such legislation.

Helium for Experimental Use: At the 1936 session in Kansas City, the House of Delegates proposed legislation that would make helium available for medicinal research and use. The federal government has practically a monopoly on this gas. There is only one other source from which it may be obtained. The price charged by the private producer is so high that it almost prohibits further experimentation with the gas or its use medicinally. The proposed legislation contemplates the sale by the government of such surplus helium as may not be needed for military or other governmental purposes. Bills were introduced in the Senate and House of Representatives authorizing the sale of government-produced helium at cost. The Senate bill was favorably reported by the Committee on Military Affairs and is now on the Senate calendar. The House bill was given a hearing, but the committee has not yet made a report.

United States Employees' Compensation Act and Osteopaths: A bill has been introduced in the Senate and in the House proposing to authorize the treatment of injured or sick employees of the federal government under the United States Employees' Compensation Act by osteopaths on the same basis as that on which they may now be treated by doctors of medicine.

The law heretofore has called only for medical treatment. These bills proposed to sanction osteopathic treatment. In both houses the bills are in committee.

Rural Medical Service: The Committee on Legislative Activities last year brought to this House the substance of a conference with representatives of the American Farm Bureau Federation. It now submits the following resolution of the American Farm Bureau directed to the Legislative Committee of the American Medical Association:

Whereas, the health of the people is of paramount importance to the well being of society, individually and collectively; and

Whereas, under the existing order the medical needs of the great middle class of society and particularly of rural people are needlessly going unmet or provided for only in part; and

Whereas, as a result of the condition mentioned above, great unrest and dissatisfaction exists, particularly among rural people; and

Whereas, numerous proposals are being offered, and will be offered, promising to correct the situation described above; and

Whereas, many of these proposals are contradictory, evidencing the need for further research or the dissemination of authentic information and sound advice on the subject; and

Whereas, we welcome the cooperation of any group, and particularly that of the American Medical Association, in our endeavor to develop and to put into practice a sound, practical, fair health program;

Therefore be it resolved, that the medical committee of the American Farm Bureau Federation respectfully requests the Legislative Committee of the American Medical Association:

- (A) We earnestly request that the American Medical Association make a careful study of plans in operation by organized groups to reduce costs of medical care.
- (B) We ask that the members of county medical societies express their willingness to confer with groups of organized farm people in an attempt to work out local problems in a manner mutually acceptable.
- (C) That the county medical societies take into account, in fixing scale of charges, the prices received in the community for farm produce.

(D) That the American Medical Association give some earnest thought to the change of the out-dated method of charge for a bedside call. In most instances, these charges were determined when roads were bad and horses used for transportation.

(E) That the American Medical Association take some action on the subject of fee splitting. This practice often renders cost of consultation by specialists prohibitive.

We further ask that the American Medical Association assist the American Farm Bureau Federation in evolving some definite workable plans that will help our farm people to work out this vexing problem.

Respectfully submitted.

By: AMERICAN FARM BUREAU FEDERATION
Committee on Medical Care.

BEN KILGORE, Chairman, Executive
Secretary—Kentucky Farm Bureau
Federation.

HERBERT P. KING, President, New York
State Farm Bureau Federation.

MABEL D. AHART, Chairman, Farm
Home Dep't, California Farm Bureau
Federation, Western Region Board
Member, Associated Women.

FRANK W. WHITE, President, Minne-
sota Farm Bureau Federation.

MRS. CHARLES W. SEWELL, Adminis-
trative Director.

Your committee considers this an important communication as explaining the attitude of one of the most influential farm organizations in the United States. It believes that the members of this House should go on record as recommending to county medical societies their close cooperation with local farm bureau organizations for the purpose of adjusting costs of medical service in a manner satisfactory to physicians and the rural communities which they serve.

Respectfully submitted.

E. H. CARY, Chairman.

J. H. J. UPHAM.

C. B. WRIGHT.

F. S. CROCKETT.

R. L. SENSENICH.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Floyd S. Winslow, Chairman, presented the following report, which was adopted on motion of Dr. Winslow, seconded by Dr. George W. Kosmak, New York, and carried:

Your reference committee feels that this Association should be deeply grateful to the Committee on Medicolegal Blood Grouping Tests for its thorough and comprehensive review on this important subject.

Your reference committee particularly desires to emphasize the recommendation in the report of the committee that the international nomenclature for blood grouping as recommended by the Health Committee of the League of Nations be adopted as a standard by the medical profession in general.

Your reference committee agrees with the recommendations of the committee as follows:

"That, where necessary, laws should be passed which would authorize courts to order blood grouping tests in cases of disputed paternity and to receive the results thereof in evidence. Such laws could be modeled after those which have been passed in New York State and Wisconsin and the laws now pending before the legislatures in California and New Jersey. It is also recommended that the question of the qualification of medical experts should be reviewed."

Respectfully submitted.

FLOYD S. WINSLOW, Chairman.

ARTHUR C. MORGAN.

C. L. CUMMER.

J. F. SILER.

McLAIN ROGERS.

The Speaker announced that permission to attend the Executive Session on Tuesday afternoon, June 8, would be granted to officers of constituent medical associations and to alternate delegates of the American Medical Association who were not sitting as delegates, as well as to regularly seated delegates.

The House recessed at 12:20 p. m. to reconvene at 2 p. m.

Executive Session—Tuesday Afternoon, June 8

The House of Delegates was called to order by the Speaker Dr. N. B. Van Etten.

The Sergeants-at-Arms polled the House, after which the House went into Executive Session at 2 p. m.

Report of Reference Committee on Hygiene and Public Health

Dr. J. Q. Graves, Chairman, presented the following report, which was adopted on motion of Dr. Graves, seconded by Dr. W. H. Seemann, Louisiana, and carried after discussion:

Your committee has carefully considered the resolutions introduced by Dr. Burt R. Shurly, Section on Laryngology, Otolaryngology and Rhinology, and with the approval and consent of Dr. Shurly desires to submit the following substitute resolutions:

WHEREAS, The family physician has labored for these many years without full recognition of his valuable services; and

WHEREAS, The various school systems of the United States depend on the family doctor for the prevention and diagnosis of disease and the protection of the public; therefore be it

Resolved, That the school boards and authorities in charge of the school systems all over our country be respectively requested to enter and file on the index card of every school child the name and address of the chosen family doctor; and be it further

Resolved, That the designated family doctor, together with the parents or guardians of the child, be informed by the proper school authorities of any accident or illness that may befall the child in the schools of this country; and be it further

Resolved, That it be recommended that all records of health examinations accompany the scholastic record of the child as he passes from grade to grade; and be it further

Resolved, That the provisions of these resolutions be brought to the attention of the secretary of each state medical association and that he, in turn, inform the secretary of each county medical society.

J. Q. GRAVES, Chairman.
L. B. BATES.
W. F. DRAPER.
MEREDITH MALLORY.
G. HENRY MUNDY.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. J. N. Baker, Chairman, presented the following report: Report of Committee to Propose Amendments to By-Laws Providing for Fitting Recognition to Fellows Rendering Distinguished Service in Science and Art of Medicine, which was submitted by the chairman of the committee, Dr. H. H. Shoulders, Tennessee: It was the unanimous opinion of the members of the reference committee that the sentiments expressed in this report and the purposes which it sought to accomplish were entirely commendable. Discussion within the committee, which was quite lengthy, largely revolved around suitable methods of procedure seeking to accomplish the end desired. Two amendments to the By-Laws were submitted with the report. These amendments, after careful consideration both by the members of this committee and by the proponents of the amendments, were altered in certain particulars with the end in view of better accomplishing the purposes set forth in the report. Your reference committee submits for the consideration of this House the following amendments:

Resolved by the House of Delegates of the American Medical Association that the By-Laws of the Association be amended by the addition of a new chapter, Chapter XI, to follow Chapter X, to read as follows:

CHAPTER XI.—COMMITTEE ON DISTINGUISHED SERVICE AWARDS

SECTION 1. There is hereby created a special committee to be known as the "Committee on Distinguished Service Awards of the American Medical Association."

This committee shall consist of five members, who shall serve for a period of three years, except the first committee, two of which shall be appointed for three years, two for two years and one for one year.

Nomination for the award may be made by any Fellow of the Association, provided it is made in a manner prescribed by the committee and not less than two months in advance of the next regular annual session of the Association.

SEC. 2. DUTIES AND POWERS OF THE COMMITTEE ON AWARDS. The Committee on Awards shall make its own rules of procedure, not in conflict with those By-Laws, with respect to the performance of its duties, subject to the approval of the Board of Trustees.

It shall consider the eligibility of nominees for the Distinguished Service Award of the American Medical Association on the basis of meritorious services in the science and art of medicine and shall submit its findings and recommendations to the Board of Trustees annually within a time limit fixed by the Board of Trustees.

In the event that more than five nominations are received, the committee shall elect therefrom a list of not more than five to be submitted to the Board of Trustees, together with a brief statement of its findings with reference to each.

The present Chapters XI, XII, XIII, XIV, XV, XVI, XVII, XVIII and XIX shall become Chapters XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX and XX, respectively.

Resolved, By the House of Delegates of the American Medical Association, that Chapter VI of the By-Laws be amended by the addition of a new section after section 4, as follows:

SEC. 5. TO ESTABLISH A DISTINGUISHED SERVICE AWARD OF THE AMERICAN MEDICAL ASSOCIATION. The Board of Trustees shall create and establish an award to be known as the Distinguished Service Award of the American Medical Association, which shall consist of a medal and a citation.

One Fellow of the Association shall be eligible to receive the award each year and shall be selected in a manner prescribed in these By-Laws.

The Board of Trustees shall consider the merits of nominees for the award recommended by the Committee on Distinguished Service Awards and shall select from the list not more than three Fellows to be balloted on by the House of Delegates. The Board of Trustees shall submit the list of nominees so selected to the House of Delegates for consideration, together with a brief statement of the findings of the Committee on Awards with respect to each nominee.

The House of Delegates shall select the recipient of the award from the list of nominees submitted by the Board of Trustees. The selection shall be by ballot, in the same manner as officers are elected. The vote shall be taken immediately after the nominees are placed before the House by the Board of Trustees.

The Board of Trustees is charged with the duty of having a suitable medal and citation prepared each year and is further charged with the duty of fixing the time and method of presentation.

Your Reference Committee on Amendments to the Constitution and By-Laws of the Association recommends that approval be given to the following amendment, submitted by Dr. George Edward Follansbee, Chairman, Judicial Council:

Amend Chapter IX, Section 1, of the By-Laws by adding to the second paragraph the following sentence: "The period of time within which appeal to the Judicial Council may be taken shall be limited to the six months following the date of decision by the constituted authority of a constituent association."

The following proposed amendments to the Principles of Medical Ethics were submitted by Dr. George Edward Follansbee, Chairman of the Judicial Council: Amend Section 2 of Article VI so that only the first paragraph shall be included in that section under the heading "Conditions of Medical Practice," and that the remaining three paragraphs of that section shall be included under a section 3 with the heading "Contract Practice."

Amend the first paragraph of the new Section 3 to read as follows:

"SEC. 3. By the term 'contract practice' as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual to furnish partial or full medical services to a group or class of individuals on the basis of a fee schedule, or for a salary or a fixed rate per capita."

In accordance with the above proposed amendments, the present Section 3, Article VI, under the heading "Commissions," becomes Section 4, and the present Section 4, under the heading "Direct Profit to Lay Groups" becomes Section 5.

Your reference committee recommends that approval of the House be given to this proposed amendment with the addition

of the words "political subdivision" after the word "organization" in the above section. The section will then read as follows:

"SEC. 3. By the term 'contract practice' as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, to furnish partial or full medical services to a group or class of individuals on the basis of a fee schedule, or for a salary or a fixed rate per capita."

Your reference committee recommends that approval be given to the proposed amendments to the By-Laws dealing with the President and the President-Elect of the Association, submitted by Dr. George Edward Follansbee, Chairman, Judicial Council, as follows:

Amend the By-Laws, Chapter IV, Section 1, last sentence to read "No member of the House of Delegates nor general officer of the Association shall be eligible for election to the office of President-Elect or Vice President."

Amend the By-Laws, Chapter IV, Section 8, to read: "Installation as President—The President-Elect shall be installed as and assume the duties of President at the opening general meeting of the Scientific Assembly of the annual session following that at which he was elected."

At the 1936 meeting of the House of Delegates held in Kansas City an amendment to the By-Laws was submitted by Dr. George Edward Follansbee, Chairman, Judicial Council, but the official record of the House does not show that this proposed amendment was properly acted on at that time. Your reference committee, therefore, again submits this amendment and recommends that proper official action be taken on it at this time:

Amend Chapter V, Section 1, fourth sentence, to read: "With the approval of the Board of Trustees he is authorized to appoint committees, (a) requested by the councils, and (b) for emergencies and purposes not otherwise provided for."

Amend Chapter IX, Section 1, the second power invested in the Judicial Council, to read "(2) all controversies arising under this Constitution and By-Laws and under the Principles of Medical Ethics, to which the American Medical Association is a party."

Add to Chapter IX, Section 1, the paragraph "The Judicial Council shall have authority in its discretion from time to time to request the President to appoint investigating juries to which it may refer complaints or evidence of unethical conduct which in its judgment is of greater than local concern. Such investigating juries, if probable cause for action be shown, shall report with formal charges to the President, who, under Chapter V, Section 1, of the By-Laws, shall appoint a Prosecutor, who, in the name and on behalf of the American Medical Association, shall prosecute the charges against the accused before the Judicial Council. The Council shall have the power to acquit, admonish, suspend or expel the accused."

Your reference committee recommends the adoption of the following amendment:

Amend Chapter XIV, Section 1, subhead 3, which now reads "Obstetrics, Gynecology and Abdominal Surgery" to read "Obstetrics and Gynecology."

Respectfully submitted,

J. N. BAKER, Chairman.
C. H. GOODRICH.
G. P. JOHNSTON.
V. E. SIMPSON.
T. F. THORNTON.

Motions were duly made, seconded and carried, that each section of the report and the report as a whole be adopted.

On motions duly made, seconded and carried, the amendments recommended by the reference committee were made to the By-Laws.

Report of Reference Committee on Executive Session

Dr. Thomas A. McGoldrick, New York, presented the following report:

1. Resolutions on the Development of a National Health Program, presented by Dr. Samuel J. Kopetzky, New York: Your reference committee believes that this subject presented here is too important, too vast and too widespread in its application to be justly and adequately considered in a few hours or

even a few days by any reference committee. It recommends that the resolution be referred to the Board of Trustees of the American Medical Association for consideration and action at the earliest possible time.

2. Report of Committee to Study Contraceptive Practices and Related Problems: Your reference committee had before it the following report:

Your committee was appointed by the Board of Trustees pursuant to a resolution adopted by the House of Delegates June 11, 1935, as follows:

WHEREAS, Under the stimulus of large nonmedical groups, the general use of contraceptives is being advocated and encouraged despite the existing law, not only by the above mentioned groups but by commercial interests as well; and

WHEREAS, The ultimate effect of these measures on the health and general welfare of the population of the United States is unknown if not questionable and should accurately and extensively be studied by the medical profession, in whose care the health of the people rests; and

WHEREAS, The laws, both federal and local, governing the physicians in their advice to individual patients, where such advice is given as a therapeutic measure, seem to be complicated, not well understood, and generally unsatisfactory, and their interpretation difficult; therefore be it

Resolved, That a special committee be appointed after due consideration by the Board of Trustees to study these related problems and to present at least a preliminary report to the House of Delegates of the American Medical Association at the 1936 annual session; and be it further

Resolved, That the trustees be requested to appropriate the funds necessary in order to carry out the purposes of these resolutions.—*Proceedings, House of Delegates, 1935, p. 45.*

The committee submitted its first report at the Kansas City session of the House of Delegates in 1936. That report, modified as suggested by the Reference Committee on Executive Session, was adopted by the House on May 12. Pursuant to the report as thus adopted, the committee was continued by the Board of Trustees "to continue a study of birth control and to report further to the House of Delegates." This report is submitted in compliance with that mandate.

Since the first report of the committee was submitted, the committee has received communications from various organizations interested in the subject, which will be presented to the House of Delegates.

The present report of your committee is limited to a consideration of the prevention of conception only as it refers to the relation of physician and patient.

Information concerning contraception is admittedly available to persons in favorable economic circumstances. There appears to be no law to prevent physicians who work in dispensaries from furnishing patients there with any information that may lawfully be furnished to patients in any other economic group. In all cases, the legal justification is the medical need of the patient.

All dispensaries, clinics and similar establishments where information and advice concerning the prevention of conception are given to the public should in the opinion of your committee be under legal licensure and supervision and under medical control.

Medical conditions which make conception inadvisable or contraindicate it were listed in the first report of your committee. Nothing has come to the attention of the committee since that report was submitted requiring any significant modification of that list.

In view of the frequent occurrence of medical indications for the prevention of conception, and in view of the medical complications that arise from ill advised contraceptive practices resorted to by women on their own initiative and without medical advice, which call for medical care, medical students should, in the opinion of your committee, be instructed fully concerning fertility and sterility and taught the clinical considerations and therapeutic application of contraceptive methods.

It is recognized that voluntary family limitation is dependent largely on the judgment and wishes of individual parents. The intelligent, voluntary spacing of pregnancies may be desirable for the health and general well being of mothers and children. This raises the question of how many pregnancies are biologically desirable and physically safe, and of the best practical means for determining the proper interval between them. No arbitrary interval can be stated. A variety of factors must be considered, including the patient's general health, the character of the previous pregnancies and labors and of recovery from

their effects, and the incidence of intercurrent illness. Your committee reiterates the opinion, expressed in its first report, that each case must be determined by the individual judgments of parents and physician, based on the conditions present.

In its first report your committee stated that it had been unable to find evidence that existing laws, federal or state, had interfered with any medical advice which a physician felt called on to furnish his patients. This view has been supported by the recent decision of the United States Circuit Court of Appeals, Second Circuit, Dec. 7, 1936, in *U. S. v. One Package*, in which it was held that a statute the words of which forbade absolutely the importation of articles for the prevention of conception was not designed to prevent the importation of things which might intelligently be employed by conscientious and competent physicians to save life or to promote the well being of patients. Although the statutes in force in the several states that forbid the dissemination of information concerning methods for the prevention of conception do not in express terms exempt physicians from their operation, it seems fair nevertheless to assume that the state courts, if called on to construe them, will adopt lines of reasoning similar to those followed in the case cited and in other cases decided by United States courts, leaving physicians free to give information concerning contraception when required to meet the medical needs of patients.

In view of the admitted medical necessity for avoiding conception in certain cases and of the general use of contraceptive preparations and devices, your committee finds no reason why the American Medical Association should not investigate such substances and devices. Such investigations for medical purposes seem to constitute a logical part of the activities of the Association in the field of therapeutic research.

RECOMMENDATIONS

Your committee respectfully submits the following recommendations:

1. That the American Medical Association take such action as may be necessary to make clear to physicians their legal rights in relation to the use of contraceptives.

2. That the American Medical Association undertake the investigation of materials, devices and methods recommended or employed for the prevention of conception, with a view to determining physiologic, chemical and biologic properties and effects, and that the results of such investigations be published for the information of the medical profession.

3. That the Council on Medical Education and Hospitals of the American Medical Association be requested to promote thorough instruction in our medical schools with respect to the various factors pertaining to fertility and sterility, due attention being paid to their positive as well as to their negative aspects.

CARL HENRY DAVIS, *Chairman*.
GEORGE W. KOSMAK.
W. A. COVENTRY.
RICHARD J. O'SHEA.
JOHN ROCK.
WILLARD RICHARDSON COOKE.
E. D. PLASS.
JAMES R. BLOSS } *ex officio*
W. C. WOODWARD }

The committee appointed in 1935 to study the subject of birth control and related problems made its report in 1936 at the annual session of the American Medical Association. The committee was continued at the 1936 session for further study of the related problems. Its present report is on contraceptive practices. With slight modifications your reference committee approves the recommendations now made and recommends that there be added to the first recommendation, "That the American Medical Association take such action as may be necessary to make clear to physicians their legal rights in relation to the use of contraceptives," the words "emphasizing the fact that all considerations in this report on the subject of the prevention of conception have their application only in conditions arising in the relation of physician and patient," and that this recommendation so modified be referred to the Bureau of Legal Medicine and Legislation.

Your reference committee recommends that the second recommendation, "That the American Medical Association undertake

the investigation of materials, devices and methods recommended or employed for the prevention of conception with a view to determining their physiologic, chemical and biologic properties and effects, and that the result of such investigation be published for the information of the medical profession," be referred to the Council on Pharmacy and Chemistry and also to the Council on Physical Therapy.

Your reference committee recommends that the third recommendation, "That the Council on Medical Education and Hospitals of the American Medical Association be requested to promote thorough instruction in our medical schools with respect to the various factors pertaining to fertility and sterility, due attention being paid to their positive as well as to their negative aspects," be referred to the Council on Medical Education and Hospitals.

Your reference committee further recommends that information and advice concerning the prevention of conception given in dispensaries, clinics and similar establishments should be given only in such dispensaries, clinics and similar establishments legally licensed to treat the sick and under medical control.

In accordance with the usual procedure of the American Medical Association all letters, communications and resolutions of individuals and societies bearing on the subject of birth control and its related problems which have been sent to the American Medical Association were referred to and were fully considered by the committee on those subjects before and in the making of its report. This includes the resolution offered this day from the American Neurological Association.

Your reference committee recommends that the Committee to Study Contraceptive Practices and Related Problems be not discharged at the present time but that its existence be continued for the purpose of supplying any assistance which it may be called on to render.

Respectfully submitted.

THOMAS A. MCGOLDRICK, *Chairman*.
J. H. CANNON.
E. H. CARY.
E. F. CODY.
JOHN H. FITZGIBBON.

The first section of the report of the reference committee, dealing with resolutions submitted by Dr. Samuel J. Kopetzky, New York, was referred back to the reference committee, on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. H. B. Everett, Tennessee, and carried.

It was moved by Dr. Francis F. Borzell, Pennsylvania, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried after discussion, that a copy of the resolutions presented by Dr. Kopetzky be placed in the hands of each of the delegates.

The second section of the report of the reference committee, dealing with contraception, was adopted section by section and as a whole, on motions duly made, seconded and carried.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. A. T. McCormack, Kentucky, and carried, the House rose from Executive Session at 3:40 p. m. and reconvened in regular session.

Report of Reference Committee on Legislation and Public Relations

Dr. T. M. Townsend, chairman, presented the following report:

To the Members of the House of Delegates of the American Medical Association: Your Reference Committee on Legislation and Public Relations has the honor to submit the following report:

With reference to the Resolution on Administration of Anesthesia, introduced by Dr. Walter A. Lane, Massachusetts, your reference committee believes that in principle the administration of anesthetics, the interpretation of roentgenograms, the interpretation of laboratory findings and the application of physical therapy measures constitute the practice of medicine and should be confined to those who are licensed practitioners of medicine. However, your reference committee also believes that in practice it is at present inexpedient to urge the enforcement of the provisions of this resolution.

The Resolution on Establishment of a Department of Public Relations, presented by Dr. L. J. Hirschman in behalf of the Michigan State Medical Society, has the hearty endorsement of your reference committee, which recommends its adoption in letter and in spirit and that the Board of Trustees indicate the technic of its accomplishment.

With reference to the Resolution on Opposition to Copeland Food and Drug Bill, introduced by Dr. Walt P. Conaway in behalf of the Medical Society of New Jersey, your reference committee recommends that the American Medical Association pledge its support to any movement looking toward the promotion of sound and effective legislation, federal and state, for the protection of the public against fraud and deception in the manufacture, distribution and sale of foods, drugs, prophylactic, diagnostic and therapeutic devices, and cosmetics.

The Resolution Approving Creation of Division of Water Pollution Control, introduced by Dr. A. T. McCormack, Kentucky, has the unanimous support of your committee, which recommends its adoption.

The report of the Committee on Legislative Activities has been carefully studied by your reference committee. That report relates the activities of the committee on many legislative matters affecting the public and the profession. It calls attention to the validation of the Social Security Act and how this might open avenues for new social legislation which might affect medicine; to the inadequacies in the food and drug legislation, and to the apparent unfairness of the Resettlement Administration authorities in placing the responsibility of medical service to their clients on our profession at a fixed fee per annum regardless of the amount of work required or responsibility involved. It also considers the inequalities of the distribution of medical care to rural communities and recommends to county medical societies their close cooperation with all rural organizations for the purpose of adjusting the cost of medical service in a manner satisfactory to physicians and to the rural communities which they serve.

That portion of the report of the Board of Trustees concerning the Bureau of Legal Medicine and Legislation has received your reference committee's attention and consideration. The narration of the activities of the Bureau gives evidence of its close touch and intimate contact with all legislation pertaining to the relations between the public and the profession. Doubtless, its close scrutiny, careful analysis and constructive advice have affected this legislation to the benefit of all concerned.

That portion of the report of the Board of Trustees devoted to the Bureau of Medical Economics goes into careful detailed consideration of the question of group hospitalization. Your reference committee commends the principles stated in that section of the report pertaining to group hospitalization and recommends the adoption of those principles as the policy of the American Medical Association, and it is urged that medical societies in those communities in which group hospital insurance is thought to be necessary be guided by these principles to the end that such schemes confine their contract benefits strictly to the facilities ordinarily provided by hospitals; viz., hospital room, bed, board, nursing, routine drugs. It is suggested that the Bureau of Medical Economics continue to collect factual and statistical data concerning group hospital insurance experience and make these facts available from time to time.

Although that section of the report of the Bureau of Medical Economics on rural medical service has already been considered in the report of the Committee on Legislative Activities, your reference committee urges serious consideration of that section of the report. It appears that because of a wide diversity of factors no uniform plan of distribution of medical services in rural communities can be adopted. It is recommended, however, that county medical societies, wherever the necessity exists, cooperate with local organizations in providing, supplementing, reorganizing or modifying good medical services to the rural population.

That portion of the report of the Board of Trustees devoted to the Bureau of Health and Public Instruction is a simple narrative of the work of that bureau during the past year. Your reference committee commends its industry and expresses the gratitude of the Association for its faithful work.

That section of the report of the Board of Trustees on Occupational Diseases and Industrial Medicine has received the careful consideration of your reference committee. Since

industrial health has become increasingly important, your reference committee believes that this Association should continue to act in such a way as will enable it to be of the greatest assistance in the prevention and control of industrial accidents and disease. Your reference committee recommends that to this end the American Medical Association establish a Council on Industrial Health which shall concern itself with matters pertaining to the control and prevention of occupational disease.

Respectfully submitted.

T. M. TOWNSEND, Chairman.
J. C. FLIPPIN.
H. T. LOW.
S. H. OSBORN.
J. G. TAYLOR.

On motions duly made, seconded and carried, the report of the reference committee was adopted section by section and as a whole, the Speaker ruling that the section recommending the establishment of a department of public relations, which involves the expenditure of money, will have to be referred to the Board of Trustees without further debate.

Report of Council on Scientific Assembly

Dr. Irvin Abell, Chairman, presented the following report, which was adopted on motion of Dr. Abell, seconded by Dr. George Gray Ward, Section on Obstetrics, Gynecology and Abdominal Surgery, and carried:

The Council on Scientific Assembly has considered the resolution introduced by the delegate from the Section on Obstetrics, Gynecology and Abdominal Surgery, relative to change in title of that section and, in view of the grounds mentioned therein and further that such change in title is requested by the section involved, recommends its adoption.

The Council further recommends that Chapter XIV, Section 1, subhead 3 of the By-Laws be amended to read "Obstetrics and Gynecology."

IRVIN ABELL, Chairman.
FRANK H. LAHEY.
JAMES E. PAULLIN.
A. A. WALKER.
J. C. FLIPPIN.

Report of Board of Trustees

Dr. Rock Sleyster, Chairman, presented the following report:

The Board of Trustees has considered the several resolutions referred to it by the House of Delegates this morning and recommends the approval of the following:

Resolutions on Time and Place of Annual Session introduced by Dr. Walter E. Vest, West Virginia.

Resolution on Campaign Against Syphilis introduced by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology.

Relative to the resolution introduced by Dr. McLain Rogers, Oklahoma, the Board of Trustees has had this matter under consideration and will continue to keep it under surveillance to see what can be done regarding it.

On motions, duly seconded and carried, the report of the Board of Trustees was adopted section by section and as a whole.

Request for Special Session of House

Dr. E. F. Cody, Massachusetts, as a member of the Reference Committee on Executive Session, moved that a special session of the House of Delegates be held Wednesday, June 9, at 2 p. m. The motion was seconded by Dr. James Q. Graves, Louisiana, and carried after discussion.

Executive Session

State Medical Defense Plans

Dr. Charles S. Skaggs, Illinois, requested the courtesy of the House to hear Dr. J. R. Ballinger, Chicago, with respect to the situation arising out of the ruling of a committee of the American Bar Association that a state association was practicing unauthorized law in the operation of its medical defense plans.

It was moved by Dr. Arthur T. McCormack, Kentucky, seconded by Dr. H. B. Everett, Tennessee, and carried, that the privileges of the floor be extended to Dr. Ballinger.

On motion of Dr. B. F. Bailey, Nebraska, seconded by Dr. Horace Reed, Oklahoma, and carried, the House went into executive session at 4:20 p. m. with Dr. N. B. Van Etten, Speaker, presiding.

Dr. J. R. Ballinger, Chicago, and Dr. W. C. Woodward, Director, Bureau of Legal Medicine and Legislation, addressed the House on the ruling of the Committee on Unauthorized Practice of Law and the Committee on Professional Ethics and Grievances of the American Bar Association.

The House recessed at 4:50 p. m.

Third Meeting—Special Executive Session, Wednesday Afternoon, June 9

The House convened in special executive session with the Speaker, Dr. N. B. Van Etten, presiding.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. J. N. Baker, Chairman, presented the following report:

The resolution to amend the Constitution dealing with the election of the President and President-Elect of the Association, introduced by Dr. George Edward Follansbee, Chairman, Judicial Council, has received consideration at the hands of your committee.

The purport of the amendment to the present Constitution is to make better provision for succession in office in case of death or of disability of the President-Elect. In giving consideration to this important matter, your reference committee feels that this body might take under advisement the possibility of providing by constitutional amendment a Vice President-Elect to be included in the general officers of the Association. Such provision is not made in the present Constitution, nor does the proposed amendment make such provision. Such provision would necessitate the amendment of Section 1 of Article VI of the Constitution by including a Vice President-Elect as one of the general officers of the Association, as well as making certain alterations in the phraseology of the proposed amendment.

Since this is an amendment to the Constitution, it will have to lie over for a period of one year before final action can be taken by this House.

Respectfully submitted.

J. N. BAKER, Chairman.
C. H. GOODRICH.
G. P. JOHNSTON.
V. E. SIMPSON.
T. F. THORNTON.

It was moved by Dr. Baker, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried, that the report of the reference committee be adopted.

The Speaker announced that the proposed amendment would lie over for one year.

The Sergeants-at-Arms reported that the House had been polled.

Cooperative Medical Service Organizations

The Speaker announced that the subject of cooperative medical service organizations might well come before the House in executive session and asked Dr. E. H. Cary, Texas, to present the matter to the House.

Dr. W. C. Woodward, Director, Bureau of Legal Medicine and Legislation, at the request of Dr. Cary, made a statement to the House concerning cooperative medical service organizations.

Report of Reference Committee on Executive Session

Dr. Thomas A. McGoldrick, Chairman, presented the following report:

Your reference committee has carefully considered the Resolutions on the Development of a National Health Program, introduced by Dr. Samuel J. Kopetzky in behalf of the New York delegation, and has held hearings at which the details of the principles and proposals were freely discussed.

The Board of Trustees has already reported to this House of Delegates its considered opinion pertaining to the reorganization, in one consolidated department, of the activities of the federal government having to do with the promotion of health and the prevention of disease. Copies of this statement, as printed in THE JOURNAL and in the Handbook of the House of Delegates, were transmitted to the President of the United States and to others in official position in Washington, and the attention of constituent state medical associations was especially called to the action of the Board, as follows:

"Recognizing that committees of the Senate and of the House of Representatives of the United States government and a special committee appointed by the President are at this time concerning themselves with the reorganization of government activities with a view to greater efficiency and economy, and recognizing also that the President, in his opening address to Congress, indicated that he would shortly present to the Congress recommendations for such reorganization of government activities in the executive branches, and recognizing moreover the great desirability that all activities of the federal government having to do with the promotion of health and the prevention of disease might with advantage be consolidated in one department and under one head, the Board of Trustees of the American Medical Association would recommend that such health activities as now exist be so consolidated in a single department which would not, however, be subservient to any charitable, conservatory or other governmental interest. It has been repeatedly said that public health work is the first problem of the state. It is the opinion of the Board of Trustees that health activities of the government, except those concerned with the military establishments, should not be subservient to any other departmental interests. This reorganization and consolidation of medical departments need not, under present circumstances, involve any expansion or extension of governmental health activities but should serve actually to consolidate and thus eliminate such duplications as exist. It is also the view of the Board of Trustees that the supervision and direction of such medical or health department should be in the hands of a competently trained physician, experienced in executive administration."

Since the House of Delegates during this session has already approved this action of the Board of Trustees, your reference committee deems it unnecessary to submit for your consideration that portion of the resolutions which deals with this subject.

Your reference committee recognizes that certain principles stated in the resolutions presented by Dr. Kopetzky have been considered by the House of Delegates on previous occasions and are matters of record. These include, for example, the recognition of the primary importance of public health, the opposition to compulsory sickness insurance and the separation of the problem on economic need and the distribution of medical service.

The Board of Trustees has given careful consideration to the extension of medical service to the indigent, as indicated in the following statement, which was contained in the report of the Board of Trustees as printed in the Handbook and which was approved by this House during its session June 8, 1937:

"In the past, the medical profession has always been willing to give of its utmost for the care of those unable to pay. The available evidence indicates that today throughout the United States the indigent are being given a high quality of medical care and medical service. Nevertheless, the advances of medical science have created situations in which a group of the population neither wholly indigent nor competent financially find themselves under some circumstances unable to meet the costs of unusual medical procedures. The Board of Trustees of the American Medical Association points out the willingness of the medical profession to do its utmost today, as in the past, to provide adequate medical service for all those unable to pay either in whole or in part. Members of the medical profession, locally and in the various states, are ready and willing to consider with other agencies ways and means of meeting the problems of providing medical service and diagnostic laboratory facilities for all requiring such service and not able to meet the full cost thereof. These are problems for local and state consideration primarily rather than problems of federal responsibility. The willingness of the medical profession to adjust its services so as to provide adequate medical care for all the people does not constitute in any sense of the word an endorse-

ment of health insurance, either voluntary or compulsory, as a means of meeting the situation."

The American Medical Association is cognizant of the medical needs of the people of the United States and is genuinely interested in all plans for providing and distributing medical care. The records, reports, source material and experience of the Association are of great value. They are at the service of agencies contemplating the development and operation of plans for medical care. These factual data, source material and experience are readily available for use in promoting and protecting the health of the American people.

Your reference committee recommends that the bureaus, councils and committees of the Association continue their studies of the need for and the methods of distributing medical care, to the end that the American Medical Association shall continue to do everything possible to promote and to protect the health of the American people.

The American Medical Association reaffirms its willingness on receipt of direct request to cooperate with any governmental or other qualified agency and to make available the information, observations and results of investigation together with any facilities of the Association.

With respect to proposals for a National Department of Health, your reference committee refers to the report of the Board of Trustees in the Handbook, page 107, which has just been read.

Your reference committee believes this fully covers the subject.

Respectfully submitted.

T. A. MCGOLDRICK, Chairman.
E. F. CODY.
E. H. CARY.
J. H. FITZGIBBON.
J. H. CANNON.

On motions, duly seconded and carried, the report of the reference committee was adopted section by section and as a whole.

The House recessed at 2:55 p. m., to meet in Special Executive Session on Thursday, June 10, at 11 a. m.

Special Executive Session—Thursday Morning, June 10

The House of Delegates convened in Special Executive Session at 11:15 a. m. and was called to order by the Speaker, Dr. N. B. Van Etten.

Address of Past President William Allen Pusey

The Speaker announced that Hon. J. Hamilton Lewis, U. S. Senator from Illinois, was on his way to the meeting to address the House. In the meantime he called on Past President William Allen Pusey, Chicago, who addressed the House as follows:

It is quite an unexpected situation for me to be asked to fill in for Senator Lewis and to make a speech without warning. As far as I can judge from my experience, it would not be fair to most people for anybody to be asked to present a speech before he prepared it. I haven't anything to say. I am delighted to be here. I appreciate, of course, the high honor of being asked to come up here today. I am interested in the proceedings of the House of Delegates. As far as I can learn from sitting on the sidelines and talking to a few wise men, the House is wise as usual. I hope you are having a very comfortable and agreeable meeting, with altruism prevailing. No man could ask for more. All I can do is to hope that your wisdom will long continue.

Address of Hon. J. Hamilton Lewis

Dr. Holman Taylor, Texas, escorted Hon. J. Hamilton Lewis, U. S. Senator from Illinois, to the platform, and the Speaker presented Senator Lewis, who addressed the House, as follows:

I recall with great gratification when you did me the compliment, on the suggestion of our distinguished fellow citizen Dr. Fishbein and your organization, to let me have some words

with you in a previous meeting. Then I boldly took the liberty to chide my brother profession on the fact that they remained always doctors and declined in the political world to be citizens. I recall that I dared to point out the changing affairs coming in the world, and how I saw that the influence of the doctor in the family and on the citizens where he lived was going to be so necessary that, if he exerted it, much would be done to avoid what I saw was a coming complication and serious confusion. If he deferred on the delicacy which many of them have—indeed all of them—that being doctors they must keep hands off of political subjects, there would be much to regret. There would be so few laying on hands in an unselfish attitude to win respect for the physicians.

Today you have been kind enough to let me visit for some reasons that all of you have not had time to understand. That is why I so audaciously asked the privilege to speak again to you.

I thank you, dear Mr. Chairman, for your reference to me, particularly your kindly and generous flattery as to the kind of Senator you were good enough to speak of. But I want to confide to you something very confidentially among professional brethren—I wouldn't attach too much importance to that designation called "Senator." . . .

[Here Senator Lewis interspersed an anecdote about the Senate.]

Doctors, I have a few words that you will allow me, I am sure, to express. I wanted to have some words with you, not to advise you, but to ask your advice, that you may understand my position. Busy as you are in your own matters, I reveal to you that which has been greatly disturbing me.

I helped write, helped prepare, and naturally as a whip and the parliamentarian of the Senate helped pass, the law you refer to as the Social Security Law. I address myself to that feature which concerns the doctors. I have not been able to agree with the gentlemen of the committee and find myself very much at variance with nearly every one who seems to touch this subject.

In the first place, I want you to know that I have felt that our country is so far away from the necessity of directing matters of the application of medicine as coming from you gentlemen that when we did approach it we approached it as a political subject. We approached it on the basis of what might be called charity and relief. I fear we quite overlooked that there was a scientific situation that had to be considered in order that justice be done all those who would be affected by the result.

You gentlemen of the profession hesitated to touch this subject. Many who felt kindly, and who in your local organization have ever done so much to aid the miserable and relieve the depressed, still shrunk to the point almost of resentment against government assuming to sit in direction as to your method of the application of your science. There was within you that in which I assure you the law and the lawyer quite fully conjoin with you: a resentment against that thing called government assuming to dominate you, control and direct you in the matters where your discretion, guided by your sense of right and your learning, directed through your years of experience, should be the sole and whole influence.

You hesitated to accept the suggestion and you naturally felt that there was an attempt on the part of the government to take from you initiative and independence of two relations, one as doctor, the other in your contractual relation of doctor and patient. I beg to say to you that you have reached a point where the change in all government must attract your attention. If you feel, dear gentlemen, that settling about in the pursuit of your undertaking and preparing the course of this great profession which you undertake to guide there has entered something of innovation and invasion, I beseech you to pause and realize that there is nothing that is not now undergoing some form of encroachment by those who fancy they know a system better than that prevailing, or by those who, because of power politically, dominate with the control an office may give.

May I speak of myself? Where I am we have a band of men among whom is your servant. We are having serious war against what is known as a set of rules called Supreme Court of the United States Rules. They are a body of law in which the whole profession of the law and its method of

practice is being revised. A new system is being put upon the lawyer, beneficial let us feel in many respects, to redeem the law from being looked on as an instrument of either mystery or persecution, but which we as a profession hesitate to accept. We have been fighting and continuously opposing it, and from the very spiritual reason that you gentlemen in your profession have not been inclined, taking you generally, to adopt this invasion upon yourselves.

But, doctors, the question for you is not whether you like it or whether you don't; whether within yourselves you feel you are better for it individually or not. The question for you is What is to be done about it? I want you to recognize one of those who recall that all your past has been that of the doctor and its patient. The patient steps up now and says "I have a voice unto myself. I am the subject of this treatment, and I am either to be the beneficiary or the victim of your procedure." Yes, and then he is having those around him that teach "Well, what right has this man anyhow?"

"He is a man. He has a right as a man."

"Correct."

"And he has a right to learn these systems which he speaks of as medicine."

"Also correct."

"But what right has he to organize a society and say to his fellow 'You can't come into this society unless you conform to certain regulations we have made for you and then pass examination and in this be so complete that we will give you our certificate' and yet in the meantime turn to the state and say 'But you can't make a certificate for us or create a society or organization that prescribes limitations.'"

Then comes the other to rise up and say "Yes, but you doctors have been a busy lot dividing yourself between those who sincerely in your profession seek to alleviate distress and others who look upon your profession as an avenue and an agency of enriching yourself, and between these two haven't you overlooked the fact as to who you are? You forget that everybody around you has been regulated by the new order of government. That man James Hamilton Lewis and his colleagues, who are they? They have from time to time been compelled to submit first to their bar association, then to some regulation, then to the right of the judge to expel them from practice, and now under the new theory their higher court, called the Supreme Court, to give the privilege even to let them practice, and if to practice to reserve the right to reform them, supervise them and dismiss them. In addition to this there has been created for those lawyers the right of the judge to name any one of them to defend and represent any human being, and as their oath to their duty is similar to that which is your distinguished Grecian oath to your profession, he has no right to complain. And if he attempts to do so he will be dismissed from the privileges of collecting his money by the law."

They turn to you doctors and say "Do you recognize, Mr. Doctor, something else of yourself? What rights have you, sir? You have learned this that gratifies you and in your heart you would serve your fellow man. That is gratifying to all those who know you. But what right have you to charge money for it? Where do you get the privilege of exacting the right to make your fellow man pay you? You get it because you give a consideration of service and you have a right to have the exaction of a fair compensation. But you go further. The state authorized you as an officer of the state to proceed into the tribunals of the state called the courts to enforce payment." Do you know, you can't collect your money, you can't testify? You have served a man a year or two, and nature in the course of things takes him away. He has a large estate or small; we will speak of the large one. You know what is due you. Do you think you can get it? Under an ancient system of the law handed down long ago to prevent the living from putting words in the mouth of the dead and thus working a fraud, there is a provision of the law which we adopted that prohibits a man who brings suit against that which is dead from taking the witness stand; he cannot testify. What is the result on the doctor? The result is you can't get on the stand and testify how long you have served that man, the nature of his malady, and bring in your brethren to show that your services called for scientific application, and you are not allowed to speak of what would be the value of your service.

You must take your chances to try to get your money out of the administrator, the executor of the will, by whatever system can be devised by those of your brethren who know nothing about that which you could have testified had you been allowed to tell the truth about it.

I mention this only to show how little you have been regarded within the processes of the law as to your real rights in the collection of that which is due you.

In the meantime, how do you think you stand now? You are giving attention for a moment to some advice from one of your fellow citizens on a matter which he dares to assume you have not thought about and to which he presses you now for serious deliberation. Are you aware that in the last forty-five years there has been a gradual accumulation in matters of national health, immigration, etc., of a form of federal procedure touching your conduct on certain classes of people—sometimes we speak of them as foreigners and sometimes immigrants—under the narcotic administration? Are you aware that you have been admitted to the practice in the state in which you live, that under that practice you are conforming to some regulations? But I propound to you: What right have you to take up any of these matters federal? Where do you get your rights? I am a lawyer. I must be admitted to my state bar; I must be admitted to the county bar, but I must be admitted to the United States federal courts before I can rise in a federal court to seek in behalf of my client his rights under the federal law. Do you know what is going to happen to you? That is why I want a word with you seriously. You are going to have a certain set of individuals, thoughtless from my point of view, meaning nothing unkindly to them, who are shortly going to demand of you that there be a system of examination and application by the federal government on every doctor of America and to prove his right to be admitted to practice under the federal law in addition to that which he is now enjoying under his local acts. Then we will come about to the thing which I am utterly against and wholly abhor but which I tell you is on its way: the designation of a certain class of doctors named by the President or by some officers of the federal government, who then become a board who are to pass on their fellow doctors having the right to be admitted to be a practitioner under the federal law.

Naturally, something in you says "Lewis, you don't really mean that there is an attitude of mind of that kind in the land?" And I am compelled to say to you, my dear comrade, not only do I mean there is such a prospect, I mean to come here today and tell you it is on you and you have got to pause to consider it, and that is why I have come to ask your advice.

I helped to draw the provision that relates to the doctor. I have been one of those, as our dear friends from Chicago will tell you, who advocate that you doctors take into your hands the system by which the poor could be cared for, hospitalization provided for, a system of guardianship so secure that the individual can be counted on at all times to be taken care of, however poor, however unfortunate. You say "As patient?" Your friend Lewis says "No." I dismiss the thought of patient, much as I know you have to carry it. I am compelled to tell you that government is on its way to saying to you "Hold up here, Mr. Doctor, we are not asking you to do anything about a patient. Where do you get this that we hear about that we are daring to interfere with your personal relations between you and your patients? We know nothing of patient, don't recognize its existence. It is your creation. We recognize an instrument called citizen who is essential to the welfare of government. He takes the form of man or woman. You have professed to be able to help him carry on his life. We need his life for usefulness in civil affairs, for the conduct of affairs of life in its civil nature, in military for the defense of his nation. And now since you assume to take care of the mother of that child that is to come forward and the mother herself that is to give birth to and help guide it, and the father who must help maintain and sustain it, we are compelled to tell you that we have got to treat you as an officer of the federal government and turn you into being such and ask you to consider the subject of yourself as an official of the federal government taking care of the citizen."

Then, since that is the position in which you are going soon to be put and which every hour you reach nearer and nearer, pardon me if as a brother professional man it is nothing less

than absurd for men to come around you and say "This is an invasion, it ought to be resisted, it ought to be resisted, it ought not to be adopted."

Your answer is "It may be you are right, but it is the policy that seems to possess mankind in his advances all over the world, and since it is to us to be acted upon, Lewis has come down to make this suggestion."

Gentlemen, I desire to reverse the situation. An amendment is now pending. I have had it hung up as like on a hook so I could come down and chat with you. I want the position wholly changed. Instead of the government taking charge of directing the doctor as to what is to be done in the matters where his science is of first application, I want the government to place the doctor in the position where he can direct the government.

Two things are ahead of you, brethren. You come down where I am and listen to the quiet and silent chat and then the whispered voice that beseeches you please not to communicate them as the source of your information; contemplate the movement already afoot by certain well meaning gentlemen who fear some other gentleman and who suggest to your representatives in public life the necessity of picking out certain favorites and constituting them as a body that shall have the full control of your great profession in order to tell each where they shall act, how they shall act, in what manner they shall act, and in every manner they shall serve. Come down close and find out how severe it is we have to contest against that and find oftentimes we are charged with ill manner because we don't wish to have those things whispered to us quietly to be put into the law without some voice to the general profession.

That brings me to say to you it is my judgment that the time is come when you have got to say to yourself "We were willing, and have been as members of organization, to do charity everywhere. We have been doing it for constant years. We pay out of our pocket for the medicine. We tender such services as we can. We give our hours at the expense of other patients to whom we owe an obligation. We join wherever we can in the local government or the state government in every form possible. We obtain no compensation. We have no manner of receiving it. We lose that which we could have made from other sources. And you, Mr. Government, while you have been busy considering what you feel should be the welfare of the needy, you have given no thought as to the rights of the individual you enforce to serve the needy."

Where, then, does that doctor stand?

Physicians, I have a proposition which I take the liberty to give to you, for it is on that that I ask that at some subsequent time you will be so good as to consider that I might through the offices have the benefit of your suggestion. It is that which I feel our committee, knowing that I am to come before you, is expecting to hear from. *I am pleased to tell you that as I left I called the President and told him I was on my way to have a conversation with you gentlemen. I would like to deliver from the President of the United States a message coming direct with his authority. He said that I was authorized to say to you he knew something of your meeting, he had been for some time observing the courses of the doctor, that he was not far removed from constantly keeping up with the features of the profession, and he wished you success as to your undertaking. If I use his exact words, he hoped that you would find a way to cooperate with him in such method as you would jointly find would be to the service of the helpless and the afflicted within such province as you felt government should undertake.* I deliver the message of the President and assure you it was a source of great pleasure that he understood I was to be here.

And here I take the liberty now to define to you what I propose should be the course as to yourselves. That I see that you are advancing to be treated as a federal official there can be no doubt; that you are on the way so soon as you qualify as a doctor in your state and your local situation, to be soon made a member enlisted in those of the profession of the federal government, and as such to be put something in the position of a captain and officer of the army and the navy. You are to be put in the position as one who is to be recognized by the government and subject to the service of the government in protecting your fellow citizen, but in the meantime I trust recognized as having your own rights which at the time may be properly preserved and guarded.

May I offer you the suggestion I have pending. I feel it is most fair to say to a doctor "Doctor, please step out from your business or family." You have children, too, and they ought to be educated; you have homes to be cared for; you have a profession to maintain; you have a prestige to uphold. I don't feel it is right, sir, despite all these attitudes of mind you get from those who have not had time to think upon it to say "Please step aside from all of this, sir, and give your time wholly and largely to the instrumentality necessary to aid those in distress and see they are lifted from it, cared for, hospitalized, medicine provided, in care and watchfulness day after day, and while it is at the expense of yourself financially and in all respect perfected, you owe it."

"To whom?"

"You owe it to what is called society."

"Am I not one of them?"

"One of what?"

"One of the thing you call society."

"Yes."

"Well, is nothing owing to me? Who paid for this education I have? Who paid for the years in which I have gone to obtain it? Who is likely to take care of those whom I am supposed to be maintaining? In the meantime, what effort is being made at least to recognize me as being one of this society in having something of the similar rights of those to whom you now send me to give my whole time and devotion?"

Therefore, dear gentlemen, I will with your consent when you have later given it consideration, if you feel it is agreeable, press on this branch that happens to be mine which I serve (you know what is called chairman of a subcommittee) that I want the present Social Security Law amended. There are amendments pending. You gentlemen too well know that the law is not new and there will be many changes. There are many eminent doctors who feel the Swedish method should be taken up by us and practically adopted, some others the German, that which prevails in Denmark, and interesting to add there is a system of which I knew absolutely nothing which seems to come from China. But the suggestion is that nevertheless you be placed in the position of complete obedience to whatever the law may enforce. I say I want that poor, that afflicted, that suddenly injured, having no funds, unable to make his private, individual contract, to have the right to summon any doctor all around him, however high, however elevated, without regard to what his elevation is, the quickest, the nearest to him for service; that doctor at once turns to the obedience of the demand, to the obedience of the need, and this patient is taken charge of at once as if he had been employed by a paying patient. He promptly sees the need of this patient for hospital, and to the extent that the patient needs the hospital this doctor has a right by virtue of the fact that he is now a federal auxiliary to step into any hospital of any kind at once and have this person attended according to the need as the doctor sees it.

And then what shall follow? It is that on which I am having my discussion. I insist that that doctor, chosen as he is at any time by any one in this need, shall have promptly the right to write down his bill, his exact charge, what he feels with his sense of honor is a fair charge for the service he is doing the patient, for the service he is giving at the hospital, for the medicine he may have to more or less if not credit for be responsible for, and he frames this charge in an intelligible, simple manner, in an ordinary bill. He takes this bill by himself or by mail or by his messenger at once to the agency where this doctor serves who represents the social service and has this bill promptly filed. He may have to repeat this a dozen times a week, he may have to do it a hundred times a month, but wherever he does this work he sends his bill for this work (I come back to you now) not to the patient but to the government whose citizen you are protecting, whose agency and power and force are needed for the carrying on of the thing they call the society you are preserving. With this bill so sent in, you promptly are paid on the theory that, of course, you would not defraud your government, but with a provision in the law that any doctor who could descend to take advantage in the way of price or misrepresentation be treated like any other fraud, and any patient who represented being unable to pay and took advantage of the doctor, taking

his services as well as from the government, be likewise treated as a direct instrument of the fraud and offense against the government; and that by this system we openly announce and we publicly proclaim that doctor as having the right to practice as an immediate representative of the federal government in whatever he attempts to do in behalf of that particular being and instrument called the citizen; that his compensations be so arranged and that he arrange them in such manner consistent with his own sense of honor and proportionate with what he knows has been the service he has been giving.

And now, dear friends, I conclude. As you know from my remarks, I am a lawyer—not always successful. I have had the usual difficulties, the ups and downs that usually follow, but I have not been without experiences in connection with your distinguished profession in many different degrees. I do not think it wise that you doctors should have this system of your compensations put under the control of gentlemen who are to be appointed to be in control of the board and to be given the domination of these privileges as an opportunity for political office. I have seen lately, and I mean nothing unkind—I am speaking to my brethren of the profession in the sense of our respect for each other, and have watched attendance to the poor creatures victims of the World War and have seen something of the service administered to them and the methods of its administration through those who are appointed as political office appointees, and those appointees, meaning ever so well, let it be understood, in all government without regard of politics of any nature. I have watched it day by day grow to where they have so imposed on the government and unhappily the victims of the disease and disorder until the whole thing has been converted into a political machine that has worked a persecution on the afflicted and a robbery on the citizen. I can't see how that can any longer continue among an intelligent body and a patriotic order of citizen. I therefore, my brethren, can't accept—until I get better advice I decline to accept—that this board that is to be constituted is to be made up of political appointees called Democrats or Republicans or whatever designation you please, whose mere political appointees shall have the right to name those who shall sit as to your amount of fees, have a right to revise your bill, consider your services, passing judgment and review on them. I cannot accept it.

I want consideration from you when you have time to reflect on it. What method would you suggest to us in one of complete fairness to you, to your profession, of a system of appointees who shall be those who shall sit in judgment on your fees, the methods of your payment, and, if you please, sometimes the quantity and quality of it? And who is it that shall sit to decide as to each of these geographic localities what particular boards shall in that locality make the board to which you must send your bill and from whom you must take your direction or counsel?

What method do you advise by which you shall not be put out of your character as doctors and subjected to merely a set of servants under the orders of those who call themselves political appointees? I can't take the latter. I am in revolt, and I burden you by coming over here and asking that I may be heard, because on this particular feature I am so much at variance with many around me that I fear I must confide to you that there is a great deal of distraction, almost sometimes amounting to violence in dispute.

I want you to take this subject in hand. There is the law. It is very deficient. Many of the principal features of the right to enter into the subject at all over the state and the government, I might say, of your offices, your duties, was very much debated. That is past the time. The question for you and which I am seeking is how to deal with the doctor, what to do with his profession, what to do with his science that he has equipped himself to discharge, and it is that that I have come to seek from you that you take charge of the subject and give advice to your government, that you please offer counsel to us, as to what in justice to your whole profession first would be the best system to put into effect some organization that shall have the voice with the doctors dealing with the doctors. Second, what shall be the qualification apart from the doctors. Of character or of experience, if you have it, of those who will serve on the board in order to be those who directly serve to the local board? In other words, dear gentlemen, your principal board in Washington I am worried about. I

don't want it made up of gentlemen appointed merely because they may have been effective in stuffing some ballot box. Nor do I want that other set who are to be rewarded for vigorous party service, however sincere, but whose knowledge of medicine consists of that which a hen would have of a neighbor about to pick up her lunch. I want some system that will assure that man who is on the way to serve that patient that he is going to be treated by those who know the value of what he is doing, on the one hand, the service of what he is doing, and that he too be protected by his government as one of those citizens and patriots that they are seeking to preserve.

Citizens, you have a great opportunity and before you a great authority. It is for you to say whether this great system of humanity is to be successful or whether you shall shrink again out of a sense of modesty and not wishing to touch public affairs allow it to drift to where it will be handled by those for political objects or other purposes that shall destroy its great usefulness. It is to you we who are public characters and public agencies in your line must look.

On motion of Dr. H. H. Shoulders, Tennessee, duly seconded and carried, the House gave a rising vote of thanks to Senator Lewis for the expressions he brought.

At 12:05 p. m. the speaker declared the House in recess until 1 p. m.

Fourth Meeting—Thursday Afternoon, June 10

The House of Delegates was called to order at 1:50 p. m. by the Speaker, Dr. N. B. Van Etten.

Report of Reference Committee on Credentials

Dr. B. F. Bailey, Chairman, reported that there was a total registration of 168, which was only four below the possible number that could be registered.

Roll Call

The Secretary called the roll and announced that more than a quorum had responded.

Presentation of the Minutes

It was moved by Dr. A. T. McCormack, Kentucky, seconded by Dr. J. E. Paullin, Section on Practice of Medicine, and carried, that the House dispense with the reading of the minutes.

Resolution on Address of Senator J. Hamilton Lewis

Dr. C. W. Roberts, Georgia, presented the following resolution, which was adopted on motion of Dr. Roberts, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried:

Resolved, That the illuminating address of Senator James Hamilton Lewis be referred to the Board of Trustees for consideration and for subsequent reference to the House of Delegates if, in its wisdom, consideration by the House is deemed to be necessary.

Report of the Board of Trustees

Dr. Rock Sleyster, Chairman, presented the following report, which was adopted on motion, seconded by Dr. A. T. McCormack, Kentucky, and carried:

The Board of Trustees reports favorably on the creation of a Council on Industrial Health and, with the approval of the House of Delegates, will proceed with the organization of the Council as a committee of the Board.

Report of Reference Committee on Medical Education

Dr. F. S. Crockett, Chairman, presented the following report: After further conference with many of those interested in defining the services to be rendered under contracts for group hospitalization, your reference committee believes that for the purposes contemplated in the Resolutions on Clarifying the Policy of the American Medical Association on the Question of Group Hospitalization, introduced by Dr. C. W. Stone in behalf of the Ohio State Medical Association, it is advisable to define hospital facilities rather than to attempt a comprehensive definition of medical practice.

It is recommended, therefore, that the contract benefit provided by group hospitalization insurance should be limited to the room, bed, board, nursing facilities ordinarily provided by hospitals, and routine medicines.

Your reference committee would refer to the report of the Board of Trustees as it appears in paragraph 4, page 83, of the Handbook, which was adopted by this House of Delegates yesterday. In that paragraph the limitations of hospital service are well defined. Your reference committee reaffirms this definition of hospital care and recommends its application to contracts for group hospitalization. In regard to certain benefits offered by many hospital insurance plans, combining professional and technical services, your reference committee is in complete sympathy with those who would make every possible provision to prevent inclusion of any and all types of service involving medical care.

It is the opinion of your reference committee that further conference between interested medical groups and the American Hospital Association would be of definite value in clarifying the twilight zone between hospital service and medical care.

Your reference committee has carefully considered the Resolution on Average Daily Census in Hospitals that had been presented by Dr. Henry A. Luce, Michigan, asking "That the House of Delegates of the American Medical Association direct the Council on Medical Education and Hospitals to approve hospitals meeting the requirements of the American Medical Association which have a daily census of fifty."

After extended conference with the Michigan delegation, your reference committee would recommend that the House of Delegates recommend to the Council on Medical Education and Hospitals that the daily average census of seventy-five might be waived in those hospitals which otherwise conform to the present standards and which, in the judgment of the Council, present exceptional opportunities for intern training.

Respectfully submitted.

F. S. CROCKETT, Chairman.
GEORGE BLUMER.
J. T. CHRISTISON.
C. A. DUKES.
W. E. VEST.

On motions, duly seconded and carried, the report of the reference committee was adopted section by section and as a whole.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. J. N. Baker, Chairman, presented the following report:

Your reference committee recommends the approval of the following resolution embodying a proposed amendment to the Principles of Medical Ethics:

Resolved, That the Principles of Medical Ethics, Chapter III, Article 6, New Section 3, be amended by the addition to paragraph 2 of the following:

The phrase "free choice of physician," as applied to contract practice, is defined to mean that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patient and physician when no third party has a valid interest or intervenes. The interjection of a third party who has a valid interest or who intervenes does not per se cause a contract to be unethical. A "valid interest" is one where, by law or necessity, a third party is legally responsible either for cost of care or for indemnity. "Intervention" is the voluntary assumption of partial or full financial responsibility for medical care. Intervention must not proscribe endeavor by component or constituent medical societies to maintain high quality of service rendered by members serving under approved sickness service agreements between such societies and governmental boards or bureaus and approved by the respective societies.

Respectfully submitted.

J. N. BAKER, Chairman.
C. H. GOODRICH.
G. P. JOHNSTON.
V. E. SIMPSON.
T. F. THORNTON.

The report of the reference committee was adopted, on motion of Dr. Baker, seconded by Dr. Charles H. Goodrich, New York, and carried.

On motion of Dr. H. A. Luce, Michigan, seconded by Dr. L. J. Hirschman, Michigan, and carried, the Principles of Medical Ethics were amended as recommended by the reference committee.

Report of Reference Committee on Miscellaneous Business

Dr. J. D. Brook, Chairman, presented the following report, which was adopted on motion of Dr. Brook, seconded by Dr. John J. Masterson, New York, and carried:

Your reference committee, to which was referred the Resolution on Evils from Promiscuous Use of Barbituric Acid and Derivative Drugs, introduced by Dr. H. A. Luce, Michigan, is informed from the report of the Board of Trustees on page 67 of the Handbook that only fourteen of the forty-eight states have laws governing the sale of these drugs and believes that, to obviate criticism from laymen and attorneys in states not having controlling laws, the resolution is timely.

Your reference committee therefore recommends that the resolution be referred to the Board of Trustees, with the request that the Bureau of Legal Medicine and Legislation take such steps as in its judgment seem proper to bring the use of these drugs under governmental control, as requested in the resolution.

Respectfully submitted.

J. D. BROOK, Chairman.
H. L. BRYANS.
WALT P. CONAWAY.
C. S. SKAGGS.
C. W. WAGGONER.

Resolutions from Section on Ophthalmology Dealing with Action of Social Security Board Relative to Applicants for Blind Assistance

Dr. Arthur J. Bedell, Section on Ophthalmology, presented resolutions, which were amended to read as follows, and which were adopted, on motion of Dr. Bedell, seconded by Dr. E. J. Best, California, and carried:

WHEREAS, The Federal Social Security Act in Title Ten has placed on the Social Security Board the responsibility of entering into cooperative arrangements with the various states for the purpose of aiding those states in granting financial assistance to needy blind individuals and has ruled that individuals in the various states who apply for blind assistance must be examined by an ophthalmologist or a doctor of medicine skilled in diseases of the eye; and

WHEREAS, The Social Security Board has advised the official state agencies that have the responsibility of administering this aid in those states to employ a supervising ophthalmologist who will have general supervision over the medical determination of blindness within the state; therefore be it

Resolved, That the Section on Ophthalmology of the American Medical Association approves the action of the Social Security Board in requiring that applicants for blind assistance within the various states be examined by a regularly licensed and registered doctor of medicine skilled in diseases of the eye or by an ophthalmologist, as such a procedure will serve to secure a fuller knowledge as to the causes of blindness within the United States; and be it further

Resolved, That the Section on Ophthalmology of the American Medical Association goes on record as approving the suggestion of the Social Security Board that the official agency in the state or territory charged with the responsibility of administering blind assistance employ a supervising ophthalmologist whose duty will be the general supervision of the medical determination of blindness of those needy individuals applying for blind assistance; and be it further

Resolved, That the delegate from the Section on Ophthalmology of the American Medical Association be and is hereby instructed to present these resolutions to the House of Delegates.

Resolution from the Section on Nervous and Mental Diseases Dealing with Psychiatric Research

Dr. H. H. F. Reese, Section on Nervous and Mental Diseases, presented the following resolution, which was adopted on motion of Dr. Reese, seconded by Dr. J. Allen Jackson, Pennsylvania, and carried:

WHEREAS, Several organizations interested in promoting human welfare have manifested a deep interest in research into the causation, prevention and treatment of mental disease and have furnished substantial financial aid to the prosecution of such research; and

WHEREAS, The Rockefeller Foundation, the John and Mary R. Markle Foundation, the Josiah Macy Jr. Foundation and the Supreme Council of the Scottish Rite of Freemasonry for the Northern Masonic Jurisdiction have been outstanding in giving moral and financial support to such research; be it

Resolved, That the House of Delegates of the American Medical Association, on behalf of American psychiatry, hereby records its gratitude for the valuable service rendered to the cause of psychiatric research by these organizations and that it heartily endorses the importance of studies looking to a solution of the problems of mental disease.

Address of Mr. R. Watson Jones

The Speaker introduced the official representative of the British Medical Association, Mr. R. Watson Jones, who addressed the House as follows:

Mr. Speaker and Gentlemen: I have the great honor to represent the British Medical Association and to bring from England a cordial expression of good will and good fellowship

to the American Medical Association. Wherever I travel in America my pulse is stirred by the warmth of the greeting and by the sincerity of the hospitality which you have shown to a British surgeon. You must know and believe that we in England have an equally warm regard for our friends on this side of the Atlantic. We are eager and anxious to cooperate with you and, if we can, to fuse the stability of Great Britain with the progress of America.

In these days of industrial disturbance and of economic and political strife, the great English speaking nations must work together for the peace of the world. It has been a short time since American surgeons made a great sacrifice and came over to England to cooperate with British surgeons in the catastrophe of twenty years ago. God protect us from another such catastrophe. It is, however, well to remember that in our service to humanity, in our attempt to relieve suffering, we can work together side by side. The great arts, science, music, medicine, know no bounds of nationality; these are given to mankind; they are of service to the world, and if every physician and every surgeon works with this as his objective, when his work is done it may be said of him, as John Drinkwater said of Abraham Lincoln, "Now he belongs to the ages."

Mr. Speaker, on behalf of Great Britain I bring a very cordial greeting from the British Medical Association to the American Medical Association.

ELECTION OF OFFICERS

Dr. Olin West, Secretary, on request of the Speaker, read Sections 1 and 3, Chapter IV, of the By-Laws referring to nominations.

The Speaker appointed as tellers Drs. W. H. Mock, Arkansas, Chairman; E. S. Hamilton, Illinois; Walter A. Lane, Massachusetts; T. R. K. Gruber, Michigan, and E. L. Henderson, Kentucky.

Election of President-Elect

Dr. Arthur T. McCormack, Kentucky, nominated for President-Elect Dr. Irvin Abell, Louisville, Ky., and the nomination was seconded by Drs. J. E. Paullin, Section on Practice of Medicine; Joseph F. Smith, Wisconsin; Terry M. Townsend, New York; J. H. O'Shea, Washington; Ephraim R. Mulford, New Jersey; A. A. Walker, Alabama; E. G. Wood, Tennessee; Samuel P. Mengel, Pennsylvania, and the Pennsylvania delegation unanimously; C. W. Roberts, Georgia, for the Georgia delegation; Herbert L. Bryans, Florida; Charles A. Dukes, California; Horace Reed, Oklahoma; Felix J. Underwood, Mississippi, and Holman Taylor, Texas, for the Texas delegation.

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, duly seconded and carried, that the nominations be closed.

Dr. J. W. Burns, Texas, moved that the Secretary be instructed to cast the unanimous ballot of the House for Dr. Irvin Abell as President-Elect. The motion was seconded by Dr. E. R. Mulford, New Jersey, and carried.

The Secretary cast the vote of the House for Dr. Irvin Abell, Louisville, Ky., as President-Elect of the American Medical Association for the ensuing year, and the Speaker declared Dr. Abell so elected.

Election of Vice President

Dr. Robert A. Peers, California, nominated for Vice President Dr. Junius B. Harris, Sacramento, Calif., and the nomination was seconded by Dr. B. F. Bailey, Nebraska, and Dr. Gunnar Gundersen, Wisconsin.

On motion of Dr. Harry H. Wilson, California, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried, the nominations were closed.

It was moved by Dr. B. F. Bailey, Nebraska, seconded by Dr. J. Gurney Taylor, Wisconsin, and carried, that the rules be suspended and the Secretary be instructed to cast the ballot of the House for Dr. Junius B. Harris as Vice President.

The Secretary cast the ballot of the House for Dr. Junius B. Harris, Sacramento, Calif., as Vice President of the American Medical Association for the ensuing year, and the Speaker declared Dr. Harris so elected.

Election of Secretary

Dr. Horace Reed, Oklahoma, nominated Dr. Olin West, Chicago, to succeed himself as Secretary of the American Medical Association, and the nomination was seconded by Dr. Charles A. Dukes, California. The nominations were closed on motion of Dr. B. F. Bailey, Nebraska, seconded by Dr. E. J. Best, California, and carried.

It was moved by Dr. B. F. Bailey, Nebraska, seconded by Dr. J. E. Paullin, Section on Practice of Medicine, and carried unanimously by a rising vote, that the rules be suspended, that the Speaker be instructed to cast the ballot for Dr. West and that the members be asked to signify their vote by rising.

The Speaker cast the ballot of the House for Dr. Olin West as Secretary of the American Medical Association and declared him elected Secretary for the ensuing year.

Election of Treasurer

Dr. Rock Sleyster, Chairman of the Board of Trustees, stated that the Board of Trustees nominated Dr. Herman L. Kretschmer, Chicago, as Treasurer. The nomination was seconded by Dr. Harold T. Low, Colorado. The nominations were closed on motion of Dr. G. Henry Mundt, Illinois, seconded by Dr. Robert A. Peers, California, and carried.

Dr. W. F. Braasch, Minnesota, moved that the Secretary be instructed to cast the ballot of the House of Delegates for Dr. Herman L. Kretschmer, Chicago, as Treasurer. The motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried. The Secretary cast the vote of the House for Dr. Herman L. Kretschmer, Chicago, as Treasurer for the ensuing year, and the Speaker declared Dr. Kretschmer so elected.

Election of Speaker of the House of Delegates

The Vice Speaker, Dr. H. H. Shoulders, took the chair and announced that the next order of business was the election of a Speaker of the House of Delegates.

Dr. Floyd S. Winslow, New York, nominated for Speaker Dr. N. B. Van Etten, New York. The nomination was seconded by Dr. Joseph F. Smith, Wisconsin.

The nominations were closed on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Charles A. Dukes, California, and carried.

On motion of Dr. H. L. Snyder, Kansas, seconded by Dr. Charles A. Dukes, California, and carried, the Secretary cast the ballot of the House for Dr. N. B. Van Etten, New York, as Speaker of the House of Delegates for the ensuing year. The Vice Speaker declared Dr. N. B. Van Etten duly elected Speaker of the House of Delegates.

Address of President-Elect Irvin Abell

The Speaker presented the President-Elect, Dr. Irvin Abell, Louisville, Ky., who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates:

I find my vocabulary quite inadequate to express to you the depth and the strength of my appreciation of the honor which you have done me and the state association of which I am a member in designating me as your President-Elect, the most signal honor in your power to bestow.

I look back on the many years of service in this House of Delegates as not only one of the happiest experiences of my professional career but one of the most inspiring. I have had the opportunity of drinking from the cup of knowledge, always kept filled to the brim with your policies of statesmanship; I have derived untold inspiration from your fellowship and your friendship, from your fidelity, your courageous spirit and your judgment in dealing with the problems of American medicine. As I look back over these years I see that the welfare and the health of the people whom we serve have ever been dominant factors in your efforts to furnish to the people of this country the highest medical service obtainable.

With a sense of my own shortcomings I accept in all humility this evidence of the confidence which you repose in me, with a full realization of the obligations and the responsibilities it entails, and at the same time with the firm determination so far as it lies within my power to walk faithfully in the footsteps of the distinguished men whom in years gone by you have so honored.

Election of Vice Speaker of the House of Delegates

The Speaker, Dr. N. B. Van Etten, resumed the chair and declared the next order of business to be the election of a Vice Speaker of the House of Delegates.

Dr. H. B. Everett, Tennessee, nominated for Vice Speaker Dr. H. H. Shoulders, Nashville, Tenn., and the nomination was supported by Dr. J. F. Hassig, Kansas, and Dr. Charles H. Goodrich, New York.

On motion of Dr. Horace Reed, Oklahoma, seconded by Dr. H. B. Everett, Tennessee, and carried, the nominations were closed.

Dr. G. Henry Mundt, Illinois, moved that the Secretary cast the vote of the House for Dr. H. H. Shoulders as Vice Speaker of the House. The motion was seconded by Dr. Harry H. Wilson, California, and carried. The Secretary cast the ballot of the House of Delegates for Dr. H. H. Shoulders, Nashville, Tenn., as Vice Speaker of the House of Delegates for the ensuing year, and the Speaker declared Dr. Shoulders elected Vice Speaker.

Election of Trustees

The Speaker declared the next order of business to be the election of two Trustees each to serve for a term of five years, and stated that the Trustees whose terms expire this year are Dr. Arthur W. Booth, Elmira, N. Y., and Dr. Rock Sleyster, Wauwatosa, Wis. He called for nominations for a Trustee to succeed Dr. Arthur W. Booth.

Dr. Frederic E. Sondern, New York, nominated Dr. Arthur W. Booth, Elmira, N. Y., to succeed himself as Trustee, and the nomination was supported by Drs. E. R. Mulford, New Jersey; E. H. Cary, Texas; J. Gurney Taylor, Wisconsin; Arthur T. McCormack, Kentucky; J. D. Hamer, Arizona; J. Newton Hunsberger, Pennsylvania, and Walter R. Steiner, Connecticut.

The nominations were closed on motion of Dr. E. R. Mulford, New Jersey, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, and the Secretary was instructed to cast the vote of the House for Dr. Arthur W. Booth, Elmira, N. Y., as Trustee, on motion of Dr. E. R. Mulford, New Jersey, seconded by Dr. Samuel F. Mengel, Pennsylvania, and carried.

The Secretary cast the ballot of the House for Dr. Arthur W. Booth to succeed himself as Trustee for a term of five years, and the Speaker declared Dr. Booth elected Trustee.

The Speaker declared the next order of business to be the election of a Trustee to succeed Dr. Rock Sleyster, Wauwatosa, Wis., whose term expires this year and who, according to the By-Laws, is not eligible for reelection.

Dr. F. S. Crockett, Indiana, nominated Dr. R. L. Sensenich, South Bend, Ind., and the nomination was seconded by Drs. H. L. Snyder, Kansas; Arthur T. McCormack, Kentucky; G. Henry Mundt, Illinois; Frederic E. Sondern, New York, on behalf of the New York delegation; J. Gurney Taylor, Wisconsin, and Arthur C. Morgan, Pennsylvania.

Dr. E. J. Best, California, moved that the nominations be closed, and the motion was seconded by Dr. J. J. Moore, Section on Pathology and Physiology, and carried.

On motion regularly made, seconded and carried, the Secretary cast the ballot of the House for Dr. R. L. Sensenich, South Bend, Ind., to succeed Dr. Rock Sleyster as a member of the Board of Trustees for a term of five years, and the Speaker declared Dr. Sensenich so elected.

Nominations for Standing Committees

Dr. J. H. J. Upham, President, submitted the following nominations for standing committees:

Judicial Council: Dr. John W. Burns, Cuero, Texas, to succeed Dr. Lloyd Noland, for a term ending in 1942.

Council on Medical Education and Hospitals: Dr. Charles Gordon Heyd, New York, to succeed Dr. Charles E. Humiston, for a term ending in 1944.

Council on Scientific Assembly: Dr. Clyde Cummer, Cleveland, to succeed Dr. Frank H. Lahey, for a term ending in 1942, and Dr. J. Gurney Taylor, Milwaukee, to fill the unexpired term ending in 1939 of Dr. Irvin Abell, who had been elected President-Elect of the American Medical Association.

On motions duly made, seconded and carried, each nomination was confirmed by the House of Delegates.

Election of Honorary, Affiliate and Associate Fellows

NOMINATION FOR HONORARY FELLOWSHIP

The Secretary submitted the nomination for Honorary Fellowship of Dr. Erich Hoffmann, Bonn, Germany, submitted by the Section on Dermatology and Syphilology and approved by the Council on Scientific Assembly.

APPLICANTS FOR AFFILIATE FELLOWSHIP APPROVED BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

Bill, B. J., Genoa City, Wis.
Bobo, C. S., Norman, Okla.
Bryant, William S., New York.
Cobb, Albert C., Boston.
Denton, Myron P., New York.
Dolloff, A. S., New Hampton, N. H.
Grady, Henry D., Miami, Mo.
Greene, Edward M., Boston.
Hansell, William, Ottumwa, Iowa.
McCready, Joseph W., New York.
Nourse, Robert L., Boise, Idaho.
Numbers, Joseph R., Boise, Idaho.
Ramsay, R. Warren, York, Pa.
Richey, Sidney M., Tulsa, Okla.
Small, Charles P., Chicago.
Spilman, S. A., Ottumwa, Iowa.
Stickney, Henry L., Sunmount, N. Y.
Turnbull, Thomas, Jr., Casanova, Va.
Warren, N. A., Yonkers, N. Y.
Wilson, H. P., Wynnewood, Okla.

APPLICANTS FOR ASSOCIATE FELLOWSHIP FROM AMERICAN MEDICAL MISSIONARIES APPROVED BY THE JUDICIAL COUNCIL

McAnlis, William W., Legaspi, Albay, P. I.
Rost, Glenn Simon, Beirut, Syria.

APPLICANTS FOR ASSOCIATE FELLOWSHIP NOMINATED BY THE SECTIONS INDICATED

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

Downs, William Gershon, New York.
Urban, Walter George, Pittsburgh.

PEDIATRICS

Kato, Katsuji, Chicago.

PHARMACOLOGY AND THERAPEUTICS

Nelson, Erwin, New Orleans.

PATHOLOGY AND PHYSIOLOGY

Bing, Franklin Church, Evanston, Ill.
Dore, Francis J., Chestnut Hill, Mass.
Queen, Frank B., Denver.

GASTRO-ENTEROLOGY AND PROCTOLOGY

Bollman, Jesse L., Rochester, Minn.

On motions duly made, seconded and carried, the nominations were approved and the nominees declared elected Honorary, Affiliate or Associate Fellows as indicated.

Place of 1938 Annual Session

The Speaker announced that the next order of business was the selection of the place and the fixing of the time of the 1938 annual session and called on the Board of Trustees for nominations.

Dr. Rock Sleyster, Chairman of the Board of Trustees, presented the following report:

Mr. Speaker, an invitation has been received to hold the 1938 annual session in San Francisco. The invitation is signed by the San Francisco County Medical Society, the California Medical Association, the mayor of San Francisco and the San Francisco Convention and Tourist Bureau. The facilities of San Francisco have been personally checked by the Secretary, the Business Manager and the Chairman of the Board and have been found to be adequate.

Dr. W. E. Kittler, Illinois, moved that the Association hold its 1938 annual session in San Francisco, and the motion was seconded by Dr. Arthur T. McCormack, Kentucky.

Dr. E. J. Best, California, extended an invitation from the medical profession in San Francisco and in California to have the Association meet in San Francisco in 1938.

Dr. Charles W. Stone, Ohio, in supporting the motion to meet in San Francisco in 1938, extended an invitation to have the Association meet in Cleveland in 1939.

Dr. Walt P. Conaway, New Jersey, invited the Association to meet in Atlantic City, N. J., in 1939.

The motion to have the Association meet in San Francisco in 1938 was carried, and the Speaker declared that San Francisco had been selected for the 1938 annual session of the American Medical Association.

Messages of Appreciation

The Vice Speaker took the chair and Dr. J. Newton Hunsberger, Pennsylvania, moved a vote of thanks and appreciation to the local committee on arrangements at Atlantic City for its splendid session, and the motion was amended to include an expression of appreciation and gratitude to the Speaker for the able work he has done and the courtesy he has extended to every member of the House of Delegates. The motion as amended was seconded by Dr. E. J. Best, California, and carried.

The Speaker resumed the Chair, and Dr. Harry H. Wilson, California, moved that a rising vote of thanks be extended to Dr. Rock Sleyster, retiring trustee, for his years of service to the Association. The motion was unanimously carried.

Communication from Citizens Committee for Support of WPA

The Secretary presented the following communication, which was referred to the Board of Trustees, on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded and carried.

House of Delegates of the
American Medical Association
in convention at
Atlantic City, New Jersey.

Attention of Dr. Charles Gordon Heyd, President
Gentlemen:

The Citizens Committee for Support of WPA wishes to express its commendation of your recognition of the principle that the health of the people is a direct concern of government. The sentiment of your Association in this regard will not fail to exert a powerful influence on public policy.

May we invoke this influence in the immediate interests of the health of the workers, to the number of from 600,000 to 1,000,000 who face momentary layoff from the WPA according to announcements of Administrator Harry L. Hopkins in the last two weeks.

To you as medical scientists, we cannot appeal from the sociological or the economic points of view, although we believe that these layoffs will be an incalculable economic and sociological disaster.

But we feel justified in appealing to you from a purely medical point of view, to endorse our principle: that if private employment is able to absorb the workers about to be laid off from WPA (which is not even claimed by the administration) then at least the "absorption" should be ensured to each worker before he is laid off.

For members of our committee have seen evidence of the havoc which previous layoff waves, of lesser scope, have wreaked upon the health of those laid off, and of their dependents, in the signed affidavits of dozens of physicians which were submitted to the administration when the damage had been done.

We feel justified also in anticipating your regret at the impending curtailment of the benefits of the many (yet still too few) medical projects of the WPA: of the nine million treatments and visits; the dental treatments to 386,000 children in New York City alone; the millions of inoculations and vaccinations against scarlet fever, diphtheria, influenza, typhoid, whooping cough, smallpox; the other medical care and laboratory research covering maternity, infant welfare, cardiac, hookworm, poliomyelitis, and tubercular fields, all reported by the administration in its official release of May 1.

May we urge you to take the opportunity, in your influential sessions, to record your sentiment against this curtailment, and to endorse the principle embodied in P4 above.

With most sincere respects,
BURRELL FREDMAN,
Acting Secretary.

Committee on Distinguished Service Awards

The Speaker, in accordance with instructions received from the House of Delegates to appoint a Committee on Distinguished Service Awards, announced the appointment of the committee as follows:

Drs. H. H. Shoulders, Tennessee, for one year; J. W. Amesse, Colorado, and J. D. Brook, Michigan, each for two years; J. F. Hassig, Kansas, and Grant C. Madill, New York, each for three years.

The House adjourned sine die at 3:30 p. m.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Society News.—The Navajo-Apache County Medical Society has been dissolved on account of the vast geographic distance entailed for a meeting of the physicians in the two counties. The Apache County Medical Society has been organized as a separate unit, with Drs. Thomas J. Bouldin, St. Johns, and Guy E. Maxwell, Springerville, as president and secretary respectively.

COLORADO

Society News.—E. E. Howell, D.D.S., Grand Junction, discussed "Oral Focal Infection" before a joint meeting of the Mesa County medical and dental societies, May 20, in Grand Junction.—At a meeting of the Northeast Colorado Medical Society in Sterling, May 13, Dr. Alfred M. Wolfe, Denver, discussed heart disease.—Dr. George L. Pattee, Denver, addressed a recent meeting of the Fremont County Medical Society on "Infections of the Head and Neck."—A recent meeting of the Delta County Medical Society was addressed by Dr. Lawrence L. Hick, Delta, on sulfanilamide in the treatment of streptococcal infections.

Midsummer Radiologic Conference.—The third midsummer radiologic conference sponsored by the Denver Radiological Club will be held at the Hotel Shirley-Savoy, Denver, July 15-17, with Dr. William W. Wasson, president of the club, presiding. Dr. Arthur J. Markley, Denver, president of the state medical society, will deliver the address of welcome. A symposium on the breast will be presented Thursday afternoon with the following speakers: Henry C. Tracy, Ph.D., Lawrence, Kan.; Drs. Frederic C. Narr, Ira H. Lockwood, James E. Stowers, Claude J. Hunt, all of Kansas City, Mo., and Lewis G. Allen, Kansas City, Kan. The evening session will be a joint meeting with the Medical Society of the City and County of Denver with Dr. Paul J. Connor, president of the society, presiding. The guest speakers will be Drs. Leo G. Rigler, Minneapolis, on "The Roentgen Examination in Preventive Medicine" and Henry Schmitz, Chicago, "The Selection of the Form of Treatment in Uterine Myomas." Other speakers on the program include:

Dr. Ernst A. Schmidt, Denver, Recent Advances in Diagnostic Radiology.
Dr. Paul C. Hodges, Chicago, Roentgen-Ray Pelvimetry and Cephalometry.
Dr. Leon J. Menville, New Orleans, Roentgenologic Studies of the Gastro-Intestinal Motor Phenomena.
Dr. Paul R. Weeks, Denver, Recent Advances in Radiation Therapy.
Dr. Hayes E. Martin, New York, Diagnosis, Treatment and Curability of Intra-Oral Cancer.

There will be round table discussions on the problems of diagnostic radiology and therapeutic radiology Friday and Saturday and the informal banquet will be held Friday evening at the Venetian Gardens.

CONNECTICUT

State Medical Election.—Dr. Hugh B. Campbell, Norwich, was chosen president-elect of the Connecticut State Medical Society at its annual meeting, May 20, in Bridgeport, and Dr. Charles H. Turkington, Litchfield, was installed as president. Dr. Creighton Barker, New Haven, was reelected secretary. The next annual session will be held in Groton and New London.

Society News.—Dr. Herbert S. Gasser, New York, director of the Rockefeller Institute of Medical Research, discussed "Nerve Fibers" before the Yale Medical Society, May 12.—Dr. Milton C. Winternitz, New Haven, discussed "Pathology of Vascular Disease" before the New London County Medical Association in Waterford, April 1.—At a meeting of the Hartford County Medical Association in Hartford, April 6, Dr. George Baehr, New York, spoke on "Visceral Manifestations of Syphilis."

Kline Exclusion Test Adopted by State Laboratories.—Beginning July 1, the bureau of laboratories of the Connecticut State Department of Health will use the Kline Exclusion Test as a routine test on all blood specimens for syphilis. The change will apply only to specimens of blood; spinal fluids will be tested as at present, it was stated. According to the bulletin of the state department of health, the change will make pos-

sible earlier reporting of specimens needing no further study. The change was agreed on after a study of comparative tests on more than 5,000 specimens.

Public Health Meeting.—The Connecticut Public Health Association held its annual meeting at the Hotel Taft, New Haven, May 26. Drs. Louis J. Dumont, New Britain, president of the society, and Joseph I. Linde, health officer of New Haven, gave opening addresses. Other speakers included:

- Dr. Stanley H. Osborn, Hartford, state health commissioner, New State Public Health Legislation.
- Leslie C. Frank, senior sanitary engineer, U. S. Public Health Service, Practical Methods of Safeguarding Milk Supplies.
- John W. Murphy, mayor of New Haven, Public Health from the Viewpoint of a Mayor.
- Dr. Reginald M. Atwater, New York, executive secretary, American Public Health Association, Today's Trends in Public Health.
- Dr. Henry B. Moyle, director, Hartley-Salmon Clinic, Hartford, Applying What We Know in Mental Hygiene, with Special Reference to Public Health Nursing.
- Dr. Herbert L. Lombard, Boston, director, adult hygiene, Massachusetts Department of Public Health, Lessons from the Massachusetts Cancer Program.

DELAWARE

Society News.—Dr. Ralph M. Tyson, Philadelphia, discussed "Tuberculosis in Childhood" before the New Castle County Medical Society in Wilmington, May 18; Dr. Ralph Pemberton, Philadelphia, spoke April 20 on the treatment of arthritis.

DISTRICT OF COLUMBIA

Medical Bill in Congress.—H. R. 6869 has passed the House, proposing to regulate the practice of cosmetology in the District of Columbia.

Personal.—Comdr. Charles S. Stephenson, medical corps, U. S. Navy, has been detailed as a member of the National Advisory Health Council, replacing Rear Admiral Charles S. Butler, resigned.

Medical Election.—Dr. Thomas E. Neill, Washington, was elected president of the Medical Society of the District of Columbia at its annual session, May 12, and Dr. Coursen B. Conklin, Washington, reelected secretary. The next annual meeting of the society will be held in Washington, May 4-5, 1938.

FLORIDA

Personal.—Dr. C. C. Witt, Arcadia, has been appointed supervisor of district number 2 of the state health department, with headquarters at Lake City.—Dr. Harold C. McDowell, Gastonia, N. C., has been named a member of the staff of the Florida Medical Center, Venice.—Dr. Rollin D. Thompson, medical director and superintendent, Wisconsin State Sanatorium, Statesan, has been placed in charge of the new state tuberculosis sanatorium at Orlando.—Dr. Leonidas M. Anderson, Lake City, was recently appointed inspector of the state institutions and administration advisor by the state board of health.

GEORGIA

District Meetings.—The Fifth District Medical Society held its annual meeting at the Academy of Medicine, Atlanta, April 29. The program was opened with addresses of welcome by Drs. Henry Clifford Sauls, Atlanta, and Benjamin H. Minchew, Waycross, presidents, respectively, of the Fulton County Medical Society and the Medical Association of Georgia. Other speakers were:

- Dr. Frank K. Boland, Atlanta, Pathfinders in Southern Gynecology.
- Dr. Bret Ratner, New York, Various Phenomena of Hypersensitiveness and Management of Asthma and Hay Fever in Children.
- Dr. Edwin C. Hamblen, Durham, N. C., Clinical Value of the Present Preparations of Sex Hormones in Gynecology.
- Dr. Porter P. Vinson, Richmond, Va., Frequent Causes of Dysphagia, with Suggestions as to the Management of Esophageal Obstruction.

At a meeting of the First District Medical Society in Millen recently, the speakers included Drs. Harry H. McGee and Leonard J. Hahne, both of Savannah, on "Some Facts About Lumbosacral Pathology as Revealed by the X-Ray" and "The Maintenance of Body Fluid Balance," respectively.—The Ninth District Medical Society was addressed at Toccoa recently, among others, by Dr. William A. Selman, Atlanta, on postoperative care of acute conditions of the abdomen; Straskernes A. Petroff, Ph.D., Trudeau, N. Y., tuberculosis, and Dr. Benjamin H. Minchew, Waycross.—Among other speakers, Dr. Otis R. Thompson, Macon, spoke on "Toxemia During the Last Trimester of Pregnancy" before the Second District Medical Society at Tifton, April 9, and Dr. Frank E. Thomas, Albany, "Management and Care of the New-Born."—Dr. Wilbur D. Hall, Calhoun, discussed "Mandelic Acid in the Treatment of Urinary Tract Infections" before the

Seventh District Medical Society at Calhoun, April 7, among other speakers, and Dr. George B. Smith, Rome, "The Problems of Cross-Eyed Children."

ILLINOIS

Hospital News.—The Fox River Sanatorium, Batavia, observed its tenth anniversary, May 23, with the opening of its new \$100,000 building. The new structure is two stories high and adds forty-four beds to the sanatorium, which is maintained by the Chicago Consumptive Aid Society.

Fifty Years of Practice.—Dr. Alfred E. Owens, Princeton, was presented with fifty silver dollars at a meeting of the staff of the Perry Memorial Hospital, May 21, in recognition of his completion of fifty years in the practice of medicine. A telegram from the state medical society announced that he had been made a life member. Speakers included Drs. Oliver J. Flint, Princeton; Samuel W. Hopkins, Walnut, and Charles C. Scott, Princeton.

Personal.—Dr. Karl M. Beck has been appointed county physician and superintendent of the Lake County General Hospital, Waukegan, for two years beginning July 1.—Dr. Robinson Bosworth has resigned as medical director of the Rockford Municipal Tuberculosis Sanatorium, effective September 1; it is reported that he is to accept a similar position with the new St. Clair County Tuberculosis Sanatorium, East St. Louis, which is to be erected this summer.—Dr. Donald W. Tripodi has resigned as superintendent of the Livingston County Sanatorium, Pontiac, to engage in private practice in St. Louis, it is reported.—Dr. Pierce A. Steele has been appointed health officer of Decatur, succeeding Dr. Wilmer M. Talbert, who resigned to engage in private practice.—Dr. Alban L. Mann recently completed twenty-five years as health officer of Elgin.

INDIANA

Dr. Carrel Lectures at Dedication.—The medical laboratory and medical building of Ball Memorial Hospital, Muncie, was dedicated April 24. Dr. Alexis Carrel, New York, of the Rockefeller Institute of Medical Research, delivered the dedicatory address on "The Past and the Future of Medical Research." Dr. Carrel was introduced by William Lowe Bryan, Ph.D., president of Indiana University, and Mrs. Edmund Burke Ball made the presentation of the building to the hospital in memory of her late husband. The new unit is one of three which make up the hospital and represent an investment of about \$2,250,000, the gift of the Ball family.

Society News.—Dr. Charles P. Emerson, Indianapolis, presented a "Comparison of Physiological and Psychological Aspects of Eastern and Western Civilizations" before the Delaware-Blackford County Medical Society in Hartford City, April 20.—The Montgomery County Medical Society devoted its meeting, April 22, in Crawfordsville, to a symposium on tuberculosis with Drs. Wemple Dodds, Crawfordsville; Russell S. Henry, Indianapolis, and Paul D. Crimm, Evansville, as the speakers.—Dr. Russell L. Haden, Cleveland, addressed a joint meeting of the Fort Wayne Medical Society and the St. Joseph County Medical Society, April 21, on anemia.—At a recent meeting of the Adams County Medical Society in Decatur, Dr. Frederic G. Maurer, Lima, Ohio, spoke on the etiology, diagnosis and treatment of heart disease.—At a meeting of the Wayne-Union County Medical Society in Richmond, April 29, Dr. Charles O. McCormick, Indianapolis, spoke on "Analgesia in Labor and Modified Gwathmey Technic."—The Elkhart County Medical Society was addressed in Elkhart, April 29, by Dr. Robert M. Moore, Indianapolis, on acute cardiovascular emergencies.—Dr. Robert N. Wimmer, Gary, addressed the Porter County Medical Society in Valparaiso, April 27, on "Newer Points of View in the Treatment of Diarrhea, Intoxication and Dehydration in Infants."—Dr. James J. D. Hoover, Terre Haute, discussed "The Underprivileged Doctor" before the Vigo County Medical Society in Terre Haute, April 13.

IOWA

Personal.—Dr. John E. Wilkinson, Ottumwa, observed his one hundredth birthday, June 6.

Society News.—Dr. Kellogg Speed, Chicago, addressed the Black Hawk County Medical Society in Waterloo, May 18, on "Acute Epiphysitis of the Proximal End of the Femur" and "Everyday Injuries to the Knee Joint."—At a meeting of the Clinton County Medical Society, May 13, Dr. Fredrick A. Willis, Rochester, Minn., spoke on "Diseases of the Coronary Arteries."—The Floyd County Medical Society was addressed in Charles City, May 25, by Dr. Daniel J. Glomset, Des Moines, on "Modern Treatment of Congestive Heart

Failure.—A symposium on cancer was presented before the Harrison County Medical Society in Logan, May 18, by Drs. Francis X. Tamisica, Missouri Valley; Samuel M. Clark, Woodbine; Elmer J. Cole, Woodbine, and Frank H. Hanson, Magnolia. —Dr. William F. Mengert, Iowa City, discussed "Toxemias of Pregnancy" before the Jasper County Medical Society, in Newton, May 4. —The Marshall County Medical Society held its annual summer clinic in Marshalltown, May 26. Dr. Waltman Walters, Rochester, Minn., the principal speaker at the banquet, discussed "Developments in the Management of Lesions of the Biliary Tract." —Dr. Thomas F. Thomsen, Red Oak, spoke on "Management of Diabetes with Protamine Zinc Insulin" before the Montgomery County Medical Society in Villisca, May 27. —A joint meeting of the Pottawattamie and Woodbury county medical societies, May 24, in Council Bluffs, was addressed, among others, by Dr. Raymond J. Harrington, Sioux City, on electrocardiography.

Reunion of Past Presidents.—A reunion of past presidents of the Iowa State Medical Society was a feature at the annual meeting of the society in Sioux City. In attendance at a luncheon in their honor were:

Dr. William Jepson, Sioux City, 1906.
Dr. Walter L. Bierring, Des Moines, 1908.
Dr. Vernon L. Treynor, Council Bluffs, 1913.
Dr. Oliver J. Fay, Des Moines, 1924.
Dr. Frank M. Fuller, Keokuk, 1925.
Dr. Smith A. Spilman, Ottumwa, 1926.
Dr. John H. Peck, Oakdale, 1930.
Dr. Channing G. Smith, Granger, 1932.
Dr. William W. Bowen, Fort Dodge, 1933.
Dr. Charles B. Taylor, formerly of Ottumwa and recently of San Antonio Heights, Upland, Calif., 1934.
Dr. Gordon F. Harkness, Davenport, 1935.
Dr. Thomas A. Burcham, Des Moines, 1936.

A silver vase, the gift of Dr. Jepson, was the centerpiece for the table at the luncheon. Bearing the inscription: "Past Presidents of the Iowa State Medical Society," it contains the names and years of service of eighty-seven presidents, beginning with Dr. Enos Lowe, who served in 1851, and ending with Dr. Prince E. Sawyer, Sioux City, who completed his term at the 1937 session. With space remaining for thirteen more names, a list of 100 past presidents may be recorded on the vase, which will be a souvenir for future reunions of these officers.

LOUISIANA

New Officers of Specialty Societies.—The Louisiana Society of Gastro-Enterology was organized at a meeting in New Orleans, May 5, with the following officers: Drs. Abraham L. Levin, president; Herbert L. Weinberger, vice president, and Louis Ochs Jr., secretary. —Dr. Edward L. King, New Orleans, was chosen president of the Louisiana State Gynecological Society at its recent annual meeting in Monroe. Dr. Armand G. McHenry, Monroe, was elected vice president, and Dr. Henry B. Alsobrook, New Orleans, secretary.

MAINE

Society News.—At a meeting of the Androscoggin County Medical Society, May 20, Dr. Augustus Riley, Boston, discussed "Pain in the Kidney Region." —Dr. Millard Carroll Webber discussed pneumonia before the Portland Medical Club, May 4. —The Kennebec County Medical Association was addressed in Togus, May 27, by Drs. Joseph E. Wheeler on "Fracture of the Patella: An Original Method of Surgical Repair"; Francis T. Williams, "Sarcoma of the Prostate"; Harry Levine, "Vitamins: Classification, Indications and Dosage," and Harry A. Goalwin, "The Less Common Causes of Headache."

MASSACHUSETTS

Society News.—Dr. W. Russell MacAusland, Boston, discussed recent advances in treatment of fractures before the Pentucket Association of Physicians, May 13, in Haverhill. —Dr. Albert H. Miller, Providence, R. I., discussed "Postoperative Pulmonary Complications" before the Boston Society of Anesthetists in Boston, May 4.

Dr. Magrath Resigns as Professor of Legal Medicine.—Announcement is made of the resignation of Dr. George B. Magrath, professor of legal medicine, Harvard University Medical School, Boston, effective September 1. Dr. Magrath was the first incumbent to fill this chair when it was created in 1932. In 1935 he resigned as medical examiner of Suffolk County, a position he had held since 1907. Dr. Magrath graduated from Harvard in 1898, becoming in that year assistant in pathology. In 1934 the George Burgess Magrath Library of Legal Medicine at the university was dedicated in his honor. Mrs. Francis Gleffner Lee, Littleton, N. H., provided the funds for both the professorship and the library.

MICHIGAN

Annual Upper Peninsula Meeting.—The fortieth annual meeting of the Upper Peninsula Medical Society will be held in Houghton, August 19-20. Speakers will include:

Dr. Herman L. Kretschmer, Chicago, Personal Experiences in the Treatment of Bladder Neck Obstructions by Means of Transurethral Electroresection (Review of 1,000 Cases).
Dr. David A. Cleveland, Milwaukee, Late Results of Intracranial Brain Trauma.
Dr. Michael L. Mason, Chicago, Management of Felon, Tenosynovitis and Acute Spreading Infection of the Hand.
Drs. John S. Lundy and Richard C. Adams, Rochester, Minn., Methods of Anesthesia and a Method of Blood Transfusion for the General Practitioner.
Dr. John D. Steele Jr., Ann Arbor, Treatment of Empyema.
Dr. Henry K. Ransom, Ann Arbor, Acute Surgical Lesions of the Abdomen.
Dr. Avery D. Prangen, Rochester, Early Treatment of Strabismus as Related to the General Practitioner.
Dr. Frank N. Wilson, Ann Arbor, Coronary Occlusion.
Dr. Howard K. Cummings, Ann Arbor, Importance of Examinations of the Cervix Uteri.
Dr. Geza de Takats, Chicago, Vascular Accidents of the Extremities.
Dr. Vernon L. Hart, Minneapolis, Orthopedic Surgery.

MISSISSIPPI

State Medical Election.—Dr. Joseph E. Green, Laurel, was chosen president-elect of the Mississippi State Medical Association at its annual meeting in Meridian, May 13, and Dr. William L. Little, Wesson, was installed as president. Dr. Thomas M. Dye, Clarksdale, was reelected secretary. The next annual session will be held at Jackson, May 10-12, 1938.

MISSOURI

New Officers of Special Societies.—Merl P. Moon, Ph.D., associate professor of bacteriology and preventive medicine, University of Missouri, Columbia, was chosen president-elect of the Missouri Public Health Association at its recent annual meeting in Springfield, April 29-30, and Dr. Edwin H. Schorer, Kansas City, was installed as president. Dr. John W. Williams, Jefferson City, is secretary. —Dr. Ralf Hanks, Fulton, was elected president of the Missouri Association for Mental Hygiene at its meeting in Fulton, May 2.

Personal.—Dr. Max A. Goldstein, founder and director of the Central Institute for the Deaf, St. Louis, received the honorary degree of doctor of laws from Washington University at its commencement, June 8. The institute is affiliated with the university. —Dr. Henry W. Schulz, St. Louis, was feted by the staff of the Lutheran Hospital, June 9, in recognition of his forty-eight years as a member of the staff. —Dr. Karl E. Maneval, Mexico, has been appointed health officer of Audrain County, succeeding the late Dr. Robert W. Berrey.

Flood Rehabilitation Project.—A program to rehabilitate the ten flood stricken counties in southeast Missouri was to have begun early in May, newspapers reported. Four district health units were set up to administer the program in the ten counties, the personnel in each unit including a health officer, sanitary engineer and two nurses, and sanitary inspectors. Dr. John Ben Jones, Charleston, is the health officer in district 1, covering Scott and Mississippi counties, with headquarters in Charleston. Health officers in other units are:

Dr. Theodore L. Waddle, Holden, district 2, Stoddard and New Madrid counties, headquarters in Dexter.
Dr. Asa Barnes, Kennett, district 3, Pemiscot and Dunklin counties, headquarters in Kennett.
Dr. Lynn M. Garner, Poplar Bluff, district 4, Butler and Ripley counties, to be expanded to include Carter and Wayne counties, headquarters in Poplar Bluff.

NEW HAMPSHIRE

Personal.—Dr. Zatae Longsdorf Straw, Manchester, received the honorary degree of doctor of science from Dickinson College, Carlisle, Pa., at the annual commencement. Dr. Straw is said to have been the first woman graduate of the college fifty years ago. She graduated from the Woman's Medical College of Pennsylvania, Philadelphia, in 1890 and spent some time in a government hospital for Indians in Idaho before going to live in Manchester. She has served in the state legislature.

NEW JERSEY

Personal.—John H. Northrop, Ph.D., of the Rockefeller Institute for Medical Research, Princeton branch, received the honorary degree of doctor of science at the annual commencement of Columbia University, June 1.

Tuberculin Testing in the Schools.—The testing of high school students in Jersey City to detect tuberculosis was begun, April 21, by Dr. Berthold S. Pollak, director of the Hudson County Tuberculosis Hospital, Secaucus, and his associates,

Drs. Immanuel Pyle, Abraham E. Jaffin and Leonard B. Fauquier, Jersey City. The physicians work in groups of six, with the assistance of eight nurses. Following the inoculation, students showing a positive reaction were to be x-rayed.

NEW YORK

Personal.—Dr. Joe R. Clemmons, assistant director of Strong Memorial Hospital, Rochester, has been appointed director of Roosevelt Hospital, New York. Dr. Clemmons, a graduate of the University of Tennessee School of Medicine, Memphis, in 1924, has been in Rochester since 1930. —Dr. Claude W. Munger, who recently resigned as superintendent of Grasslands Hospital, Valhalla, was honored at a farewell dinner at the Westchester Country Club, May 11, by various official groups with which he has been associated. Dr. Munger has been appointed director of St. Luke's Hospital in New York City. —Dr. James M. Blake, assistant superintendent of Glenridge Sanatorium, Schenectady, has been made superintendent to succeed Dr. James C. Walsh, who recently went to the Nassau County Sanatorium, Farmingdale. —Dr. Fraser D. Mooney, medical superintendent of Buffalo General Hospital, was elected president of the Hospital Association of New York State at the annual meeting in New York, May 21. —Dr. Frank F. Williams recently celebrated his fiftieth anniversary as health officer of the town of Canton. —Dr. Arthur J. Bedell, Albany, will sail June 30 for England to address the Oxford Ophthalmological Congress in July.

New York City

Society News.—At the last meeting for the season of the Medical Society of the County of New York, May 17, the speakers were Drs. Aaron Brown, on "Skin Manifestations of Allergy"; Albert Vander Veer, "Treatment of Hay Fever"; Robert Chobot and Robert A. Cooke, "Treatment of Asthma," and Maximilian A. Ramirez, "Internist vs. Allergist." —Dr. John R. Carty addressed the New York Roentgen Society, May 17, on "Roentgen Ray Therapy as a Diagnostic Measure in Tumors of the Mediastinum and Superior Sulcus."

Dr. Ballard Named Dean of College of Pharmacy.—Charles W. Ballard, Ph.D., professor of materia medica, Columbia University College of Pharmacy, has been appointed dean of the school, succeeding Henry V. Arny, Ph.D., whose retirement becomes effective July 1. Dr. Ballard received his degrees in pharmacy and philosophy at Columbia, where he has been teaching since 1907. He has been micro-analyst of the New York City Department of Health since 1917 and an associate member of the revision committee of the U. S. Pharmacopeia since 1920.

Personal.—Dr. George Gray Ward, emeritus professor of obstetrics and gynecology, Cornell University Medical College, and chief surgeon of the Woman's Hospital, will be made an honorary fellow of the British College of Obstetricians and Gynecologists, October 22, in London. Other Americans who received this honor were the late Drs. John Whitridge Williams, Baltimore, and William P. Graves, Boston. —The Harlem Eye and Ear Hospital gave a dinner, June 3, for Dr. Charles Bramman Meding in honor of his completion of fifty years of medical practice and as a trustee of the hospital. Dr. Meding graduated from Columbia University College of Physicians and Surgeons in 1887. —Dr. Raphael A. Bendove, assistant clinical professor of medicine, Long Island College of Medicine, Brooklyn, has been appointed assistant professor of clinical medicine at the New York Post-Graduate Medical School. —Dr. Clement B. Masson has been promoted to be assistant professor of neurologic surgery at Columbia University College of Physicians and Surgeons. —Dr. Stephen E. Manheimer, recently at Mount Sinai Hospital, has been appointed executive director of the Jewish Hospital of Brooklyn, succeeding Dr. Morris Hinenburg.

NORTH CAROLINA

Commission to Study Establishment of Medical School.—Gov. Clyde R. Hoey has appointed a commission authorized by the recent legislature to study the advisability of establishing another four year medical school in the state. Members of the commission are Drs. William M. Coppridge, Durham; William de B. MacNider, Chapel Hill, dean, University of North Carolina School of Medicine; Coy C. Carpenter, Wake Forest, dean of Wake Forest College School of Medical Sciences; Thomas W. M. Long, Roanoke Rapids, secretary of the Medical Society of North Carolina; Benjamin J. Lawrence, Raleigh, secretary of the state board of medical examiners; Judge L. R. Varner, Lumberton, and Joe W. Garrett, Madison. The commission will submit a report to the 1939 general assembly.

NORTH DAKOTA

Meeting of Specialty Society.—Dr. Henry P. Rosenberger, Bismarck, was elected president of the North Dakota Academy of Ophthalmology and Otolaryngology at the annual meeting in Grand Forks during the annual session of the North Dakota State Medical Association in May. Dr. Nelson A. Miles Youngs, Grand Forks, was made vice president and Dr. Frederick L. Wicks, Valley City, secretary. Dr. Arthur E. Smith, Los Angeles, was the guest speaker, on "Reconstructive and Plastic Oral Surgery."

OHIO

Society News.—The Academy of Medicine of Cincinnati was addressed, May 18, by Drs. Joseph B. Biederman on "Prevention of Constitutional Reactions in the Treatment of Allergic Patients" and Eslie Asbury, "Newer Methods in the Treatment of Fracture of the Hip." Dr. Otto J. Seibert presented a case report on "Multiple Annular Carcinomata of the Large Bowel."

Veteran Practitioners Honored.—Drs. P. Calvin Hartford, East Palestine, and Wilbert A. Hobbs, East Liverpool, who have practiced medicine for more than fifty years, were guests of honor at the annual outing of the Columbiana County Medical Society at the East Palestine country club, June 3. Dr. Harry Bookwalter, Columbiana, was toastmaster at the dinner, which followed a golf tournament. —Dr. Henry LuSern Hinkley has completed fifty years of practice in Green Springs; he was the first health officer of Seneca County, holding the position six years.

Plaque in Memory of Dr. Perkins.—A bronze plaque has been placed in the reading room of the department of hygiene and bacteriology of Western Reserve University School of Medicine in memory of the late Dr. Roger G. Perkins, who was professor of hygiene and preventive medicine at the school from 1910 to 1930 and professor emeritus from 1930 to 1936. He had been associated with the school since 1901. Dr. Perkins, who died March 28, 1936, also served, among other positions, as chief of the bureau of laboratories of the Cleveland division of health, city bacteriologist, consultant to the commissioner of health and director of the laboratories and chairman of the Cleveland Health Council.

OKLAHOMA

Society News.—Dr. Bert E. Mulvey, Oklahoma City, addressed the Garfield County Medical Society, Enid, May 27, on "Cardiac Arrhythmias" and Dr. Bert F. Keltz, Oklahoma City, "Use of Protamine Insulin." —Dr. Albert L. Salomon, Oklahoma City, was elected president of the Oklahoma Pediatric Society at the annual meeting during the session of the Oklahoma State Medical Association, which was held in Tulsa in May. Dr. Ben H. Nicholson, Oklahoma City, was elected secretary of the society.

PENNSYLVANIA

Society News.—At a meeting of the McKeesport Academy of Medicine, May 24, Charles G. King, Ph.D., professor of chemistry, University of Pittsburgh, Pittsburgh, discussed "Recent Advances in the Science of Nutrition." —A symposium on the prevention and control of scarlet fever was presented before the Montgomery County Medical Society in Norristown, June 16, by Drs. Stuart Mudd, Philadelphia; Max Strumia, Bryn Mawr; Percival Nicholson, Ardmore, and Pascal F. Lucchesi, Philadelphia. —Dr. George P. Müller, Philadelphia, discussed "Surgical Diagnosis" before the Delaware County Medical Society at its meeting in Chester, June 17. —At a meeting of the Fayette County Medical Society in Uniontown, June 13, Dr. Leo H. Crip, Pittsburgh, discussed "The Role of Allergy in the Practice of Medicine."

Philadelphia

Professor of Otology Appointed.—Dr. Horace James Williams has been appointed professor of otology at Jefferson Medical College to succeed the late Dr. Joseph Clarence Keeler. Dr. Williams graduated from Jefferson in 1912 and has been practicing in Philadelphia since 1917. For several years he has been associate in otorhinology at the Graduate School of Medicine of the University of Pennsylvania. He is director of service, department of otolaryngology, at the Germantown Dispensary and Hospital, and on the consulting staff of the Philadelphia Hospital for Contagious Diseases and Memorial Hospital.

Pittsburgh

Medical Bureau Established.—The Medical Bureau of Pittsburgh, sponsored by the Allegheny County Medical Society and the Odontological Society of Western Pennsylvania, opened June 1 at 1513 Clark Building, Seventh Street and Liberty Avenue. The bureau will be operated on a nonprofit basis and as soon as a sufficient cash surplus is accumulated the facilities will be expanded to provide more services, according to the *Pittsburgh Medical Bulletin*.

Prizes for Intern Case Reports.—The first prize in the twentieth annual case report contest of the Allegheny County Medical Society went to Dr. John B. Wood, Mercy Hospital, for his report of an unusual cause of portal thrombosis in a case reported in the service of Dr. John W. Fredette. Second prize was awarded to Dr. Gertrude E. Martin, Columbia Hospital, Wilkensburg, who reported a case in the service of Dr. William B. Hetzel of noma in a man aged 52 years following acute vegetative endocarditis. Dr. Wood graduated from the University of Michigan School of Medicine, Ann Arbor, in 1936, and Dr. Martin, Woman's Medical College of Pennsylvania, Philadelphia, 1936.

SOUTH DAKOTA

State Medical Election.—Dr. John F. D. Cook, Langford, was chosen president-elect of the South Dakota State Medical Association at its annual meeting in Rapid City, May 24-26. Dr. Earle A. Pittenger, Aberdeen, was installed as president and Dr. Clarence E. Sherwood, Madison, was elected secretary to succeed Dr. Cook, who has served several years in that office. The 1937 session will be held in Huron.

TENNESSEE

Upper Cumberland Annual Meeting.—The Upper Cumberland Medical Society held its forty-third annual meeting at Cookeville, June 24-25. Among the speakers were:

- Dr. Owsley Grant, Louisville, Ky., Report of Recent Series of Prostatic Cases Operated on by Various Methods.
- Dr. Franklin Jelsma, Louisville, Common Surgical Lesions of the Brain and Spinal Cord.
- Dr. John B. Youmans, Nashville, Some Aspects of Postgraduate Training.
- Dr. Henry L. Douglass, Nashville, Urology for the General Practitioner.
- Dr. Rettig Arnold Griswold, Louisville, Fractures of the Humerus.

WASHINGTON

Plague Infection Appears in Washington.—According to *Public Health Reports*, plague infection has been proved, by animal inoculation and cultural reactions, in fleas and lice taken from ground squirrels in Adams County. This is believed to be the first positive evidence that plague exists among wild rodents in Washington. The locality in which the infected fleas and lice were collected is the most northern point in the United States in which wild-rodent plague has been found, it was stated.

HAWAII

Annual Territorial Meeting.—Dr. Thomas Keay, Pepeekeo, was chosen president of the Hawaii Territorial Medical Association at its annual meeting in Hilo recently, and Dr. Douglas B. Bell, Honolulu, was reelected secretary. The next annual meeting will be in Honolulu. The program was presented by:

- Dr. Frederick K. Lam, Honolulu, Maternal and Child Program in Hawaii Under the Social Security Act.
- Dr. Carl W. Tempel, medical corps, U. S. Army, Biliary Giardiasis.
- Dr. Howard E. Crawford, Hilo, Trachoma in Hawaii.
- Dr. Gideon M. Van Poole, Honolulu, A Case of Papilloma of the Larynx in a Child.
- Dr. Carl J. W. Wilen, Hilo, Tuberculosis of the Trachea and Main Bronchi.
- Dr. Richard T. Treadwell, Kohala, A Rural Birth Control Program.
- Dr. Adolph G. C. Schnack, Honolulu, Roentgen Kymography of the Heart.
- Joseph E. Alicata, Ph.D., Honolulu, A Study of Trichinosis and Infectious Jaundice in the Hawaiian Islands.
- Drs. James S. Shinn and Nils P. Larsen, Honolulu, Hookworm Infestation in Hawaii.
- Dr. Fred L. Adair, Chicago, Obstetric Hemorrhage.
- Dr. Albert J. Desautels, medical corps, U. S. Navy, Present Status of Urology in the Navy.
- Dr. Arthur W. Duryea, Honolulu, Meningococcus Epidemics in Honolulu, 1929 and 1930.
- Dr. Guy C. Milnor, Honolulu, Obstetrics in Hawaii.
- Dr. Albert R. Behnke Jr., Pearl Harbor, medical corps, U. S. Navy, Anesthesia.
- Dr. Clifford G. Grulec, Evanston, Ill., Anemias of the New-Born.
- Dr. Lyle G. Phillips, Honolulu, gave his presidential address at a general session Friday evening.

GENERAL

American Documentation Institute.—The American Documentation Institute has recently been incorporated to develop and operate facilities that are expected to promote research and knowledge in various intellectual fields. The primary objective of the new organization will be to develop and apply the new technic of photomicrography to library, scholarly, scientific and other material. The board of trustees elected consists of Robert C. Binkley, Ph.D., Western Reserve University, Cleveland; Solon J. Buck, Ph.D., Washington, D. C., director of publications, National Archives; Watson Davis, Washington, D. C., director, Science Service; James Thayer Gerould, Litt.D., librarian, Princeton University Library, Princeton, N. J., and Dr. Ludvig Hektoen, Chicago, chairman of the National Research Council.

Digest of Treatment.—Volume I, number 1, of *Digest of Treatment* has just appeared, with the date of July 1937. The periodical will contain digests of articles, dealing specifically with treatment, published in various periodicals. A board of editors has been established. Many of the articles in the current issue deal with newer developments related to insulin. A wide range of periodicals has been consulted, although all the publications digested are English. Whether or not an abstract or digest periodical of this character is needed in the field of medicine will, of course, be determined by the extent of its use. Digests in other fields have apparently depended for their success on the choice of material and on the quality of the digest. This publication proposes to make its success wholly on an editorial basis, since advertising will not be carried.

Association of Obstetricians, Gynecologists and Abdominal Surgeons.—The annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held at the Homestead, Hot Springs, Va., September 20-22. Among speakers listed on the preliminary program are:

- Dr. William Wayne Babcock, Philadelphia, Improvements in the Operative Treatment of Carcinoma of the Large Bowel.
- Dr. Cameron Duncan, Brooklyn, Treatment of Vesicovaginal Fistula.
- Drs. James R. Goodall and Richard M. H. Power, Montreal, Visceral Allergy.
- Dr. Jean P. Pratt, Detroit, Early Diagnosis of Carcinoma of the Fundus.
- Dr. Frederick S. Wetherell, Syracuse, N. Y., Diverticulitis of the Lower Colon in Women—Differential Diagnosis and Treatment.
- Dr. Walter T. Dannreuther, New York, Frank-Geist Operation for Congenital Absence of the Vagina.
- Dr. Daniel Dougal, Manchester, England, will deliver the Joseph Price Memorial Oration, on "The Problem of Endometriosis."

Changes in Status of Licensure.—The Kansas State Board of Medical Registration and Examination reports the following action:

- Dr. John W. Yankey, Mankato, license revoked, April 15, for conviction of a felony.
- The Kentucky State Board of Health recently reported the following actions taken at its January meeting:
- Dr. William Hammond Ashby, Oakland, license revoked.
- Dr. Eugene Fogle Beard, Somerset, license revoked.
- Dr. James W. Griffin, Lewisport, license restored; it was revoked Jan. 20, 1936.

The Massachusetts Board of Registration in Medicine reports the following:

- Dr. Arthur E. Brides, Stoughton, license restored April 20.
- Dr. William Martin Walsh, Boston, license revoked April 1 for gross professional misconduct.
- Dr. Hans William Bencker, Jamaica Plain, license revoked April 1 for gross professional misconduct.

The Illinois State Department of Registration in Medicine reports the following:

- Dr. Abraham Benjamin, New York, license revoked May 8 because of his conviction of attempted grand larceny in New York.
- Dr. Milton M. Glascoe, Jacksonville, Ill., license restored April 14.

Medical Bills in Congress.—*Changes in Status:* H. R. 6906 has passed the House, proposing to regulate the use of cannabis. This bill, among other things, proposes an excise tax of \$1 a year on physicians, dentists, veterinary surgeons and other practitioners who distribute, dispense, give away, administer or prescribe cannabis to patients on whom they, in the course of professional practice, are in attendance. Such practitioners are to be required to keep a record of all cannabis dispensed to a patient, showing the amount transferred and the name and address of the patient. This record must be kept for a period of two years. S. 2113 has been reported to the Senate, proposing to provide benefits on account of disability or death due to service in the armed forces of the United States in the event of war. *Bills Introduced:* S. 2572, introduced by Senator Pope, Idaho, proposes to amend the Social Security Act so as to increase grants to states for aid to dependent children by providing for payment to the state of an amount equal to one half instead of one third of the sums

expended by the state during each quarter. H. R. 7580, introduced by Representative Pace, Georgia, proposes that, in the administration of the laws and regulations providing for pension and compensation to veterans of the World War, any veteran disabled or deceased prior to Jan. 1, 1925, from lymphatic leukemia or pernicious anemia shall be presumed to have acquired his disability during the World War or to have suffered an aggravation of a preexisting lymphatic leukemia or pernicious anemia during such period.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lancaster General Hospital, Lancaster, Pa., received half the \$55,000 estate of Alfred B. Grubb and will receive the other half after the termination of a trust.

Lankenau Hospital, Philadelphia, \$5,000 by the will of Mrs. Emma V. Arthur.

Presbyterian Hospital, Philadelphia, \$15,000 by the will of George A. Walker.

Pennsylvania Hospital, Philadelphia, \$21,000 by the will of the late Emily Dawson.

New York Eye and Ear Infirmary, Presbyterian Hospital and Roosevelt Hospital, all of New York, \$10,000 each by the will of the late Samuel Hopkins.

New Haven and Grace hospitals, New Haven, Conn., \$1,000 each, and Hospital of St. Raphael, New Haven, \$2,000 by the will of Noyes D. Clark, New Haven.

Methodist Episcopal Hospital, Philadelphia, \$20,000 to endow a free room for Methodist ministers; Misericordia Hospital, Philadelphia, \$5,000 by the will of Mrs. Sarah B. Field.

Meeting of Urologists.—The thirty-fourth annual meeting of the American Urological Association will be held at the Radisson Hotel, Minneapolis, June 28-July 1. The program will include symposiums on hydronephrosis, renal tumors and pyogenic prostatitis. The speakers at the general sessions will include:

Drs. Nelse F. Ockerblad and Hjalmar E. Carlson, Kansas City, Mo., The Distribution of Ureteral Pain as Determined by Faradic Stimulation in Man.

Drs. Carl F. Rusche and Samuel K. Bacon, Hollywood, Calif., Primary Ureteral Neoplasms, with Report of Two Cases and Review of the Literature.

Drs. J. Duane Miller and William J. Butler, Grand Rapids, Mich., Studies on Cystocele and Urinary Incontinence in the Female by Use of Cystograms and Urethrograms.

Drs. Richard Chute and Sylvester B. Kelley, Boston, Lesions of the Urinary Tract Producing the Symptoms of Intra-Abdominal Disease.

Drs. Walter G. Maddock and Reed M. Nesbit, Ann Arbor, Mich., Fundamentals in Water Balance.

Drs. Ira R. Sisk, John B. Wear and Andrew J. Trinkle, Madison, Wis., Peritoneal Lavage in Cases of Elevated Nonprotein Nitrogen of the Blood.

Drs. Norris J. Heckel and Willard O. Thompson, Chicago, The Influence of the Anterior Pituitary-like Hormone on the External Genitalia of Young Boys.

Drs. Charles B. Huggins and William J. Noonan, Chicago, Observations on Spermatocoele.

Drs. Grayson L. Carroll, Bransford Lewis and Louis C. Kappel, St. Louis, Further Clinical and Laboratory Observations of Mandelic Acid.

Dr. Gilbert J. Thomas, Minneapolis, will deliver his presidential address Wednesday on "The Treatment of Renal Tuberculosis" and Dr. William F. Braasch, Rochester, Minn., the Ramón Guiteras Lecture on "Clinical Data with Chronic Pyelonephritis."

Conferences on Health Education.—The National Committee on Mental Hygiene and local mental hygiene societies recently cooperated in holding conferences on education and mental health in Wilmington, Del., Philadelphia and Detroit, in an effort to promote closer understanding between educators and psychiatric leaders and more constructive measures on behalf of mental health in elementary schools. "Michigan's Mental Health—A Challenge to Medicine" was the theme of a medical session during the Detroit conference. Speakers included:

Dr. Robert H. Haskell, medical superintendent, Wayne County Training School, Northville, Mich., chairman.

Dr. James S. Plant, director, Essex County Juvenile Clinic, Newark, N. J.

Dr. Raymond W. Waggoner, director of the State Psychopathic Hospital, Ann Arbor.

Dr. Martin H. Hoffmann, Dearborn, director, parole clinic, Eloise Hospital, Eloise.

Dr. William H. Marshall, Flint.

Dr. Raymond B. Allen, dean, Wayne University College of Medicine, Detroit.

Drs. John C. Montgomery and Hugo A. Freund, both of Detroit.

Other speakers who participated in the various sessions included Drs. Clarence M. Hincks, New York, director of the national committee; Earl D. Bond, medical director, Mental Hygiene Institute, Pennsylvania Hospital, Philadelphia; Ira S. Wile, New York; Frederick H. Allen, director, Philadelphia Child Guidance Clinic; Camilla M. Anderson, Philadelphia, secretary, Pennsylvania Mental Hygiene Committee of the Public Charities Association; Bruce B. Robinson, director of the department of child guidance, Newark, N. J.; Messop A. Tarumian, superintendent of the Delaware State Hospital, Farnhurst, and George S. Stevenson, New York, National Committee for Mental Hygiene.

FOREIGN

Memorial to Crawford Long Unveiled.—A bronze plaque was recently unveiled as a memorial to Crawford W. Long in the library of the Royal College of Surgeons of Edinburgh. It was the gift of the Southern Society of Clinical Surgeons in the United States and bears the dates 1815-1878 and the inscription: "Discovered ether anesthesia at Jefferson, Georgia, March 30, 1842." Mr. Charles R. Nasmith, the American consul, unveiled the plaque, which was presented by the American society in appreciation of the reception accorded its members when they visited Edinburgh in June 1936.

Congress for Protection of Infancy.—The second International Congress for the Protection of Infancy will be held in Rome, October 4-8, following the fourth International Pediatric Congress, which will be September 24-30. There will be two sections of the congress, hygienic-sanitary and juridical-social, according to an announcement. Official languages will be English, French, German, Italian and Spanish. Members of the organizing committee are Drs. Giovanni B. Allaria, director of the pediatric institute of the Royal University of Turin; Nicola Pende, director of the institute of medical pathology, University of Rome; Francesco Valagussa, director of a preventorium in Rome, and Paolo Gaetano, attorney of the supreme court of Italy and vice president of the Italian union for child welfare. For information address Dr. Allaria, Corso Bramante 29, Torino 120.

Deaths in Other Countries

Sir Samuel Squire Sprigge, editor of the *Lancet* since 1908 and a member of its staff since 1892, died in London, June 17; he would have been 77 years old June 22. He received the degree of bachelor of medicine at Cambridge University in 1887 and the degree of doctor of medicine from the same university in 1904. He also studied at St. George's Hospital. He was a member of the Royal College of Surgeons of England and a fellow of the Royal College of Physicians. He accompanied Sir Walter Besant to Chicago in 1893 to attend a literary congress and after his return to England became assistant editor of the *Lancet*. In 1928 he visited the United States again to deliver the Hunterian Oration before the American College of Surgeons at its meeting in Boston in October. His subject was "Grand Curiosity." He served as chairman of the Society of Authors from 1910 to 1913. He was knighted in 1921. Sir Squire published in 1896 "The Life and Times of Thomas Wakley," the founder of the *Lancet*, and edited in 1901 "The Autobiography of Sir Walter Besant." He also edited "Conduct of Practice." Other publications included "Methods of Publishing," "Odd Issues," "An Industrious Chevalier," "Medicine, Its Practice and Public Relations," "Some Considerations of Medical Education," and "Physic and Fiction."

Government Services

Food Seizures in April

The U. S. Department of Agriculture reports the seizure of large shipments of sea foods during April. The greatest number of seizures was of fresh crabmeat contaminated during packing with filth and bacteria, with a total of 3,340 pounds confiscated in metropolitan areas of the Atlantic seaboard. Other canned fish seized because of decomposition were 810 cases of salmon and 550 of tuna. Parasitic worm infestation accounted for the seizure of 66,000 pounds of herring and 1,200 pounds of Canadian whitefish. There were 9,340 shipping cases of raisins seized because of contamination with hydrocyanic acid gas as a result of emergency fumigation during the maritime strike on the Pacific coast. There were 47,900 pounds of rice seized; it had been stored on ship in contact with containers of lead chromate, which sifted out and penetrated the sacks. Drug items seized during the month included 296 packages of absorbent cotton and 876 of gauze bandages, not sterile as labeled; 1,343 cans of impure anesthetic ether; 177 bottles of an isopropyl alcohol solution sold as rubbing alcohol unqualified; two consignments of glandular preparations which did not exhibit the physiologic activity claimed on the labels. The many fines imposed included one on the Goodwin Preserving Company, Louisville, \$330 and costs for short weight apple butter and preserves deficient in fruit, and \$350 and costs on the Davis Cleaver Produce Company, Inc., Quincy, Ill., for butter containing less than the legal minimum of butter fat.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 29, 1937.

Conference on the After-Care of the Tuberculous

The occasion of the coronation, which brought representatives from all parts of the British empire, was taken advantage of to organize a meeting of delegates to discuss the care and after-care of tuberculosis in the British empire. Sir Kingsley Wood, minister of health, said that until ten years ago tuberculosis stood foremost in England among diseases as a cause of death. In 1851-1855 it had a standardized death rate of 3,638 per million of population. Since then there had been a continuous decline, until in 1935 the rate was only 687. Nevertheless tuberculosis was in this country on the list of killing diseases next to cancer. At the end of 1935 there were in England and Wales 29,000 beds in institutions for the treatment of tuberculosis, and the country was covered with a network of tuberculosis dispensaries working in touch with physicians and health officers. The minister particularly commended village settlements for the tuberculous, where provision was made not only for treatment but for suitable occupation. Lord Horder, who presided over one of the sessions, said that, while there had been a considerable advance in the past two generations, the tendency to speak of tuberculosis as under control was an overstatement. In some parts of the empire the diagnosis of tuberculosis struck a death knell, as it formerly did in this country. The process of racial immunization was only beginning in those places.

THE BAD EFFECT OF CITY ENVIRONMENT

Dr. Sidney Vere Pearson spoke of the factors in city life which promoted tuberculosis. Big cities were sucking up the people from the rest of the country. The conditions that seemed to have a bearing on tuberculosis were (1) the time and energy wasted in traveling to and from work, (2) the growing difficulty of obtaining open-air recreation, and (3) the anxiety associated with city life in these days. Was it realized that London was 30 miles across? A town healthily planned might have a low tuberculosis and general death rate. The tuberculosis death rate for Letchworth garden city was only 38 per hundred thousand.

Dr. Frederick R. G. Heaf of the public health department, London County Council, said that the average incidence of tuberculosis for certain outdoor manual workers in London was greater than for indoor workers. He regarded this as a criticism of the idea that open air was essential to treatment. The actual cause of breakdown in tuberculosis was obscure; infection did not seem to be the chief item. The class that endured the hardest physical strain, received the lowest wages and spent the smallest amount on food was the one most prone to tuberculosis. Fatigue and undernourishment probably called for greater attention in a highly civilized and mechanized country.

ENVIRONMENTAL FACTORS IN CARE AND AFTER-CARE

Sir Pendrill Charles Varrier-Jones (the pioneer of the village settlement for the treatment of tuberculosis) thought that after-care was the most powerful method now available for the prevention of tuberculosis. The idea that only material environment need be considered was inadequate. Resistance was governed not only by material conditions but by the mental state, which might bring about imbalance of the endocrine system and so predispose to tuberculosis. In treatment the psychologic aspect, which was much neglected by physicians, must be considered. Enforced idleness led to destruction of moral fiber. But work of the right kind for the patient should be provided. It was disastrous to put him to what he regarded as an inferior job. After-care must be linked to hospital sana-

toriums. Too frequently the tuberculous were regarded as inferior—the medieval outlook. They were the victims of civilization. Society should try to compensate for the wrong it had done them by providing the best environment and restoring their working capacity.

INDIA

Major-General Sir Cuthbert Allan Sprawson said that the steady decline of tuberculosis in England had not occurred in the overseas countries and certainly not in India. Trustworthy figures were not available, but the public health commissioner recently estimated that there were about two million tuberculous persons in India. This was probably an underestimate, because many cases were undiagnosed and unreported. The death rate from pulmonary tuberculosis in Ipswich was 52 per hundred thousand, and in Chicago 56, but in Calcutta it was said to be 240 and was probably higher. Industrialization, especially if not controlled, and the free immigration of a rural population into cities were accompanied by an increase of tuberculosis, and this danger now existed in India and was an urgent problem.

CANADA

Dr. Robert E. Wodehouse said that Canada's attitude to the tuberculosis problem was greatly influenced by that of the United States. The death rate from tuberculosis in 1936 was about 60 per hundred thousand, about a third of what it was thirty years ago. Among the North American Indians the rate was high, about 700, while in other parts of the population it was as low as 25. In some areas there was ample free accommodation for any one with tuberculosis. While a man was in the hospital the state gave his wife the same pension as if she were a widow, and if she was the patient he received an allowance for a housekeeper.

Hospital Scheme for the Middle Man

While there are many charities for the sick poor, the large mass of workers with salaries from \$1,250 to \$2,500 have been passed over. Yet they are often not so well off, because of the claims on them, as many are of the so-called working class and cannot afford nursing fees. For some years the governors of St. Bartholomew's Hospital have realized the need for some provision for this class, but they are precluded by the terms of the hospital charter from applying any of its funds for this purpose. They are bringing forward a scheme for the erection of a special ward block adjoining the hospital, to be run as a financially separate entity but enjoying all the advantages and services which a large hospital offers, where persons of moderate means can be treated for a modest charge and where the services of the eminent physicians and surgeons of the hospital will be available. It is proposed to raise a capital sum of about \$600,000 for the erection and equipment of the building.

The Storage of Food

The Advisory Council of the Department of Scientific and Industrial Research has published an important report on research, carried out at the Low Temperature Station, Cambridge, on the storage of food. The effect of radiation from radioactive substances in destroying bacteria is being studied in connection with the storage of meat. Methods of storing eggs in different concentration of carbon dioxide are being tried. It has been found that a concentration of 60 per cent prevents attack on eggs by molds and gives an excellent yolk but an especially fluid white. Peas have been stored in refrigerated chambers with the atmosphere adjusted to the correct amount of carbon dioxide for long periods extending well into the summer. Their flavor, texture and appearance were entirely satisfactory. Excellent results under commercial conditions have been obtained by improved methods for the preservation of peas by freezing. Quick cooling and freezing following blanching in hot water were essential. The color and flavor of the peas were improved by the addition of from 0.1 to

0.15 per cent of sodium carbonate. The storage of flour is being studied. It has been found that during storage the bacteria content diminishes to a small value, while the fungous content rises to high values.

Samuel Kinnier Wilson

Neurology has sustained a great loss by the death of Dr. S. A. Kinnier Wilson at the age of 59. The son of an Irish clergyman, he was born in New Jersey, U. S. A., and educated at Edinburgh University. He was house physician to Sir Byrom Bramwell, a great teacher who turned his interest into neurologic channels. He settled in London, where he became physician and neurologist to King's College Hospital and physician to the National Hospital, Queen's Square. At the latter he came under the influence of Hughlings Jackson and imbibed from him a philosophic approach to neurologic problems. He is known all over the world for his discovery in 1911 of progressive lenticular degeneration, which is called "Wilson's disease." He showed that spasticity and tremor could be produced by a symmetrical lesion in the putamen and caudate nucleus. This was the beginning of knowledge of the motor functions of the basal ganglions. An accomplished writer and eloquent lecturer, he illuminated many neurologic subjects—aphasia and apraxia, disorders of motility and muscle tone, narcolepsy, hysteria and epilepsy. In 1920 he became editor of a new periodical, *The Journal of Neurology and Psychopathology*, which was later taken over by the British Medical Association. In 1928 he published "Modern Views on Neurology," in which he wove his own observations on many subjects into the fabric of neurology. But he did not live to publish what would probably have been his most important work, a textbook of neurology on which he had been engaged for ten years. He had written over three quarters of the text and he has left the remainder in unfinished form. It was expected that, with his gift of lucid exposition, he would have produced a standard international textbook like that of Gowers in the last generation. The hope remains that his colleagues will be able to complete the book so that a great loss to the medical world will not take place.

PARIS

(From Our Regular Correspondent)

May 29, 1937.

Opposition to Proposed Antivenereal Disease Law

The principal paragraphs of the bill now before the senate, which aims to prevent the spread of venereal diseases, were cited in a previous letter (*THE JOURNAL*, March 20). The question whether it would be possible to carry out some of the requirements of the proposed law was actively discussed at a recent medical meeting in Lyons. Dr. Charles Fouqué strongly objected to the paragraphs which make it obligatory for the attending physician to inform the public health authorities as soon as a patient consults him for a venereal disease and that the carrier of a venereal disease can be fined or imprisoned if he or she shall knowingly transmit it, and to the attempt to stop the present plan of medical inspection of licensed street walkers and houses of prostitution and substitute for it the closing of resorts of all types in which prostitution is carried on.

Dr. Fouqué maintained that such a plan would be ideal but that its authors were not realists and failed to see conditions as they actually exist. Those who wished to institute social reform measures ought to be realists and not idealists. No physician worthy of the name would feel obligated to reveal what he considered to be a professional secret. Syphilis is, after all, a disease which the carrier wishes to keep secret and does not wish to have known at either a hospital or a dispensary. The speaker believed that strict compliance with this compulsory notification feature of the law would defeat its object as a preventive measure of the spread of venereal dis-

eases. The patient who is financially able to consult a physician at his office will avoid doing so when knowing that the public health authorities must be informed of the nature of the ailment, and as a last resort the patient will be driven into the hands of quacks.

It will also be difficult, on account of the relatively long period of incubation of syphilis, to decide as to when the patient is in a state of being able to contaminate others. Nine times out of ten, neither the health official nor the judge will be able to determine who has been the carrier; hence the door is left open for many a case of blackmail of the suspected carrier. As to the measures for the suppression of prostitution, it will soon be found that these cannot be carried out. There are a certain number of women, the type as described by Lombroso, who will follow a life of prostitution, some for pecuniary gain, others not.

Fouqué endorsed the work of two of his colleagues, Carle and Lacassagne, who have accomplished excellent prophylactic work among the prostitutes of Lyons. Street soliciting can and ought to be suppressed. The Italian method of dealing with the question of prostitution was warmly endorsed. The houses are provided with all hygienic facilities to prevent contamination and are subjected to constant and strict medical and police surveillance. It would be desirable that these houses should be visited by women health inspectors, who should make every effort to bring it about that those who have been forced to live the life of prostitutes might be removed and given an opportunity to earn a livelihood elsewhere. Fouqué made a plea to the members of parliament not to pass a law that would soon be found to be inoperative.

Official to Direct Use of Leisure Time of Workers

One of the results of the forty-hour week law has been to give every worker one free day a week in addition to Sunday. For banks in larger cities, the free day is Saturday. In smaller communities the banks will close on Monday. All insurance companies are closed Saturdays and the same is true of factories. Grocery stores, butcher shops and bakeries will be closed on Monday. The large retail stores are attempting to solve the problem of whether to close all day Saturday or Monday. These details are cited to show how a law works out which gives two days a week leisure time to all workers, including even those employed on railroads. For the latter as well as for hotels and restaurants, the question of reducing the working week to forty hours is an especially difficult one.

How should the worker spend this extra day a week to the best advantage? The government, at the time the forty-hour week law was passed in 1935, created an assistant secretaryship of sports and leisure. The first occupant of this office is an energetic young man, Mr. Leo Lagrange, who has just announced his program in the April 18 issue of one of the Paris evening journals, the *Soir*. He stated that it was his ambition to do all in his power to encourage the creation of a strong, healthy and happy people by having them spend two days a week in the open air. A branch of the central bureau will be formed in each of the eighty-six departments of France to encourage the development of physical education. Mountain climbing and skiing enthusiasts will find shelters in every one of their favorite regions. A large park for all kinds of sports is being planned now, within an hour's ride from Paris, at Montlhéry. Similar recreation parks will be created within a radius of 30 miles from Paris in all of the metropolitan areas. The problem of building special paths for cyclists, as now exist in Belgium, will not be an easy one in France, where there are more than ten million people who prefer bicycle riding to any other form of outdoor exercise. Mr. Lagrange is also thinking of the season when inclement weather interferes with all outdoor sports except skating and skiing. He is planning to encourage workers to utilize their extra day of leisure (Saturday or Monday) to visit the museums or the cinemas and to

plan to take their annual vacations (with full pay) in winter instead of in summer. Special excursion rates will be arranged so that the worker will benefit by visiting other parts of France and also foreign countries. More than 500,000 persons engaged in skiing and other mountain sports during the past winter. The program to encourage the intellectual and physical condition of the workers is an ambitious one and it will be interesting to watch such a state-directed policy.

Application of Forty-Hour Week to Medical Laboratories

At the March 5 meeting of the organization of the Parisian region which looks after public relations of the medical profession, a protest was voted against the application of the forty-hour week law to the personnel of laboratories. The reasons given were that it was impossible, as in industry, to change those in charge of laboratory work at stated intervals. A medical technician who has commenced an analysis cannot always turn it over at a certain hour to another, but ought to follow it through to the end himself. The plea that the forty-hour week would decrease unemployment cannot apply to laboratories, because there are not more than 300 trained technicians in France, all of whom are employed. To close the laboratories all day, either on Saturdays or Mondays, as is now the case in industry, would be a hardship. Many examinations require continuous work for two or three days and it is often not practicable to suspend an analysis for two days (Saturday and Sunday or Sunday and Monday respectively) in succession. This new forty-hour week law as applied to industry, hospitals and laboratories has raised many a thorny problem for the employers.

Denatality Both a Moral and an Economic Problem

An intensive study of the question of natality in France has just been terminated and appears in the April 17 *Presse médicale*.

It was shown that there has been a decrease in the number of births as compared to the number of deaths here since the World War. The two classes that contribute almost entirely toward the maintenance of at least an equilibrium between the number of births and the number of deaths are certain of the middle classes and the poorer peasant class, the latter because they need help on their farms. The upper middle classes contribute less than any other toward an increase in the birth rate. The remedies that have been proposed are, first, to raise the moral standard of the younger generation by encouraging the "boy scout" movement and by making home life more attractive for girls; second, to create an economic environment which will favor natality, such as awards for large families, financial aid for young couples and abolition of taxes varying according to the number of dependents. At the March 7 meeting of the national assises under whose auspices this study of denatality was made, Dr. Sireday mentioned as causes the widespread use of contraceptives, abortion, sterility due to salpingitis, and the large number of women suffering from pulmonary tuberculosis. Speakers from various regions of France presented statistics. In the mountainous portions, the natality was 35 per thousand compared to 15 per thousand at lower altitudes. In the mining regions of northern France the natality had decreased from 35 to 18 per thousand. In Brittany, the annual number of births varies, having dropped during the past twenty years in one department (county) from 23,000 to 13,000, and in another the excess of births over deaths during the same interval has dropped from 3,300 to 150. In the majority of cases, this denatality was due to economic causes. In Normandy, denatality is especially marked, owing to the flocking of people from villages and small towns to the larger cities.

Mr. Risler, president of the commission on denatality, mentioned three important causes: (1) the rapidly increasing use

of alcoholic beverages; (2) syphilis, which causes 140,000 deaths a year, and (3) abortions, which are estimated to interrupt from 300,000 to 500,000 pregnancies annually.

Congress of French Alienists and Neurologists

The forty-first congress of French Alienists and Neurologists will be held June 30-July 5 at Nancy. Reports will be made on the following subjects: In psychiatry: Acute alcoholic delirium from the biologic point of view, by Dr. Bargues of Agen. In legal medicine: Neuropsychiatric examination of recruits, by Major B. Pommé of the Val-de-Grace Military Hospital of Paris. In neurology: Cerebellar atrophy by Dr. N. Peron of Paris.

BERLIN

(From Our Regular Correspondent)

May 20, 1937.

Congress of the Society of Internal Medicine

The German Society of Internal Medicine met at Wiesbaden during Eastertide with Professor Siebeck of Berlin presiding. The first main topic of discussion was nutrition. The opening report on "New Concepts of Nutrition" was read by Professor Bessau, ordinarius in pediatrics at Berlin. Among the causes of nursing mortality, deaths of premature infants no longer loom as large as formerly. The great body of fatalities occurring later in infancy are ascribable to defective nutrition. Every mistake in nutrition during the nursing stage gives rise to well known symptoms indicative of depleted vitality. The development of young children so affected remains arrested at an early infantile stage. If in the first half year of life a nutritional disturbance is present, a resultant pathologic syndrome will manifest itself in the second half year. The foregoing problems were discussed in detail with particular consideration of the vitamins. According to Bessau, bottle milk feeding is an immediate cause of hypovitaminosis, since the need of supplementary nutritive substances (above all vitamins B₁ and C) will be determined by the supply of nutritional elements of the first order. Among diseases based on vitamin deficiency belong cardiac dysfunctions in over fattened children and in status thymicolymphaticus. If defective nutrition leads to dysfunction of the mesenchyma, the latter condition may prove ultimately pathogenic for such diseases of age as cirrhoses, atherosclerosis and arthritis deformans. Many mesenchymoses of old age may be conditioned by constitutional factors, but the pathogenic rôle of the exogenous noxa has certainly been greatly exaggerated. Disturbances of nutrition should henceforth be studied and treated on a larger scale as a disease condition of fundamental importance.

Professor Bürger, policlinician of Bonn, next read a report on the nutritional treatment of diabetes in which he voiced his opposition to the so-called free diet advocated by Stolte for childhood diabetes. In insulin therapy one should take into account the glycogen which increases the blood sugar and which can even be obtained from dry insulin. In adults various aspects of treatment with insulin are to be considered. Not a maximal but an optimal amount of carbohydrate is required. The quantity will be determined by the state of metabolism and the amount of work performed. The favorable action of fruits and vegetables is apparently to be attributed to the supplementing substances; therefore more natural, unaltered carbohydrates should be supplied. In the discussion of Bürger's paper, the most varied opinions were expressed by both the pediatricians and the internists.

Among other papers submitted was that of Otfried Foerster of Breslau on the vegetative regulation of the hypothalamus. It is not always established with certainty that from the nuclei of the third ventricle fibers pass toward the hypophysis. It is certain, however, that the hormone of the posterior lobe passes into the third ventricle. That a diabetes insipidus appears after extirpation of the hypophysis cannot be verified, as

long as the tuber cinereum is unimpaired. If, however, the tuber cinereum is destroyed also, which happens in dogs, disturbances of growth will be manifested and later on obesity. If hypophysial damage has taken place, any of an extraordinary diversity of symptoms may appear, including hypertonia, hypersexuality and diabetes insipidus. Clinical observations have demonstrated that radical removal of the sella turcica will be followed by diabetes insipidus only if the floor of the third ventricle is damaged in the vicinity of the regio hypothalamica. The accompanying phenomena are psychic defects and hyperthermia.

The third day was given over to reports on the pathology of the thyroid. The first speaker, Eugster of Zurich, discussed the pathogenesis of endemic goiter with particular consideration of the question of heritability. Two large scale examinations were made of 15,000 persons from fourteen Swiss villages. A first series of examinations was carried out in 1912-1913 and a second twenty years later. With respect to heritability it was ascertained that susceptibility in older siblings is greater than among the younger; the latter are often spared because the mother has acquired a fully developed goiter after several pregnancies. Goitrous immigrants into goiter-free regions have goiter-free progeny, so in such instances the environmental influences preponderate. Research on twins yielded the following important observations: dizygotic twins who are goiter carriers are not affected in the same manner; enzygotic twins, however, virtually always exhibit completely (and even histologically) identical types of goiter. Accordingly it is considered proved that in the pathogenesis of goiter the capability of reaction against external influences is inherited. Climatic influences are expressed by the incidence of the manifestation in certain "goiter years." Even the "little climate" may be a factor: residence in a lower story results much more frequently in the production of goiter than residence in an upper story. Thus it was observed that in enzygotic twins, that is, twins representing identical hereditary factors, the twin who resided in a lower story became goitrous, whereas the other twin who lived upstairs did not. Distribution of goiter in various localities is chiefly domiciliary and not familial. Regarding the influences exerted by the soil, it can be said that regions abounding in water favor the development of goiter. Abundance of iodine may counteract the factors conducing to goiter within a particular region, but this does not mean that goiter zones must necessarily be deficient in iodine. The aggregate of observations lead one to conclude that the pathogenesis of endemic goiter is to be explained in terms of environmental influences on the phenotype as well as in heredity. That is to say, in addition to the inherited traits other factors must be considered such as topography, meteorological variations, the atmosphere of the dwelling, the type of community and the nature of the soil. These environmental factors tend to interfere with hereditary modifications and traits. The whole salt (iodized salt) prophylaxis has been used with favorable results. Wilhelm Falta of Vienna discussed the interrelation of exophthalmic goiter and the diencephalon. In that disease the thyroid center is observed to be in a state of heightened irritability. The increased thyroid activity depends in part on the state of stimulation in the diencephalon but there likewise exists a primary state of irritability in the regio subthalamica. However, this does not mean that all cases of exophthalmic goiter are conditioned by the central nervous system. Falta concluded on the basis of his investigations that the increase in thyroid function makes possible secondary alterations of the centrum: in addition to the peripheral point of attack the thyroxine possesses another point of attack in the diencephalon and this is especially the case in toxic influences. Conversely, there exists in the nervous disorders that involve the diencephalon high grade resistance to thyroxine. Other observations too speak for the central path. Because of the possibility

that the increased blood sugar content may be lowered in exophthalmic goiter by the use of barbituric acid derivatives, experiments have been attempted with a "twilight sleep" produced by these substances and a measure of success has been obtained. Many pathologic manifestations are thus abolished, such as tachycardia, perspiration and tremor. This provides ground for the assumption that by use of this method the thalamencephalic centrum in its increased state of irritability may be reduced. The level of iodine in the blood also was diminished by around 30 per cent. Against the concept of a pituitary type of exophthalmic goiter as a disease entity is the fact that in this disease the thyrotropic hormone in the blood is not increased. Neither is central exophthalmic goiter to be regarded as a distinct type. In concluding his report, Falta repeated his contention that the etiology of exophthalmic goiter is to be sought in a plurality of factors. His observations led him to believe that psychic trauma too may frequently influence the pathogenesis. This report was followed by an extensive discussion.

The fourth day of the congress was dedicated to the problems of tuberculosis. As the internists met in joint session with the German Tuberculosis Society, this day's proceedings are reported separately.

Tuberculosis Congress

The German Tuberculosis Society met during Eastertide at Wiesbaden in joint session with the German Society of Internal Medicine. The first principal topic was "Of What Importance is a General Tuberculous Infection to the Human Organism?" Speaking as a pathologist, Professor Huebschmann of Düsseldorf said that tuberculosis in any form is a general disease of the entire organism. Alterations of the myocardium, spleen and kidneys ought rather to be ascribed to the general debility of the tuberculous organism and are connected with the destruction of tissue which is so extensively manifested in tuberculosis. Whether or not certain independent disease entities such as rheumatism and many nervous disorders are in any way associated with the direct action of the bacillus of tuberculosis remains doubtful. In conclusion, Dr. G. v. d. Weth of Beelitz Sanatorium, speaking as a pathologist, said that the pathogenic importance of quiescent scars of a previously arrested tuberculosis should not be overestimated. Furthermore, there are the stationary tuberculous processes with bacillary excretions which, with respect to the individual, are hardly to be designated as disease, yet which for the environment and the nation represent foci of disease necessitating medical and prophylactic measures. Deist of Ueberruh discussed from a clinical point of view the manifold phenomena of tuberculosis in various organs. The importance of pleuritis exsudativa as the initial symptom of a previously unmanifested tuberculosis is certain, if another etiologic disorder, pneumonia or polyarthritis, for example, is not present. Many manifestations in various organs, as the blood vessels or the heart, in the gastro-enteric canal or in the liver, may be explained in terms of the hematogenic reciprocal toxic effect of the bacillus of tuberculosis. Cases of tuberculous rheumatism are to be similarly evaluated, but general incorporation of acute polyarthritis within the framework of tuberculosis can by no means be considered as certain. The question whether and to what extent the tuberculosis bacilli may (intact or merely functionally) pass through damaged organs without producing an organic tuberculosis is best studied in the kidneys. The bacillus of tuberculosis is able under certain conditions to pass through a kidney without producing any clinically tangible results. There can be no question that tuberculosis is capable of exerting direct influence on the course of recognized mental disorders, schizophrenia in particular.

The topic of discussion on the second day was specific chemotherapy in tuberculosis. Schlossberger of Berlin said that no significant observations with respect to tuberculosis in man

could be elicited from chemotherapeutic experimentation with animals. In the artificially infected experimental animals the disease follows a wholly disparate course from that which it takes in the human subject. In animals the antituberculosis defense forces of the organism seem to be virtually nonexistent. Accordingly, advances in the chemotherapeutic approach to tuberculosis can be achieved only by careful verification of the effect of seemingly suitable new substances on the human organism. The speaker is of the opinion that in treatment with gold the compound, in addition to its influence on the cells of the infected organism, also directly affects the bacilli of tuberculosis. Prof. Adolf Bacmeister of St. Blasien, speaking from the clinical point of view, said that at present the best founded theory was that of an action chiefly catalytic and nosotropic exercised by the gold compound on the reticulo-endothelial system. This effect is manifested clinically by a focal reaction and an activation of the general defense mechanisms. Thus this type of treatment serves at one and the same time as a stimulation therapy and as a treatment directed against the disease as such. It is indicated in all exudative and productive forms of tuberculosis, provided the organism's reticulo-endothelial system still possesses sufficient power of reaction. The use of newer improved preparations has reduced, if it has not yet abolished, the danger of a noxious influence of the gold. All other forms of chemotherapy, the speaker said, are of minor importance compared with the gold treatment.

SWITZERLAND

(From Our Regular Correspondent)

April 24, 1937.

The Use of Roentgen Therapy in Malignant Tumors

According to H. R. Schinz, professor of roentgenology at Zurich, in the *Münchener medizinische Wochenschrift*, in Switzerland, a country of 4,200,000 population, 5,696 persons died of cancer in the year 1930. In the canton of Zurich alone there were, during the same year, 1,913 cancer deaths in a population of 611,000 and in the city of Zurich 385 cancer deaths in a population of 245,000. One in every eight deaths occurring in Switzerland is due to cancer and the proportion for both the canton and the city of Zurich is one cancer death in every seven. Cancer has increased, he believes, as a result of the increased average age of the population. The curve of cancer mortality has passed the curves for infant mortality and fatal tuberculosis. In the city of Zurich, cancer is the most frequent cause of death; in the year 1934, for example, 17 per cent of all fatalities were due to cancer as against 9 per cent to tuberculosis and 15 per cent to arteriosclerosis. During the years 1926 to 1933 the upper respiratory and alimentary tracts (with the exception of the esophagus) were the fourth most frequent seat of cancer among males. If cancers of the esophagus had been included, these areas would have occupied second place.

In cancers of the upper respiratory and alimentary tracts the most important therapeutic procedure is irradiation. Three principal methods are available: treatment with roentgen rays, with radium and with telecurietherapy. Most patients coming to Zurich for treatment are in a stage when local roentgen therapy is no longer possible. Telecurietherapy cannot be carried out because of the scarcity of the element. Roentgen treatment is therefore administered in the form of a protracted-fractionated and prolonged irradiation. This treatment is rigorous, it may even give rise to exudative radio-epidermitis and fibrinous radio-epithelitis and these lesions may in turn require several weeks' treatment. During an earlier period (1919-1928) a primary, local and regional freedom from symptoms could be obtained in only 14 per cent of the cancer cases. From 1929 to 1935 this could be accomplished for 53 per cent of the cases. In the first period 319 patients were treated, in

the second 517. Formerly, improvement could be obtained in 31 per cent of the cases; now such results (shrinking or disappearance of the cancer) are obtained in 77 per cent. During the period from 1919 to 1928 the percentage of permanent results was small except for cases in which the seat of the disease was the oral cavity or the inner larynx. For the whole period, "cures" that lasted for three years could be obtained in only 6 per cent of the cases and for five years in 5 per cent. In cancer of the hypopharynx there were no cures lasting as long as three years. Lasting results were more frequent during the second period (1929-1935). In 22 per cent of all the cases in this period there had been no recurrence three years after cure and in 13 per cent there had been no recurrence five years after cure. Early recognition, early diagnosis and early treatment remain of paramount importance.

Chronic Nervous Disorders As a Cause of Death

Professor Isenschmid of Berne has recently published a critical discussion of chronic nervous disorders as a cause of death in Switzerland. The chief source of information was the official mortality statistics, which have for a long time been well compiled in Switzerland. According to the statistics the chronic nervous disorder responsible for the greatest number of deaths in Switzerland was epilepsy (1,260 deaths in the five year period from 1928 to 1932). This was followed by paralysis agitans (623 deaths), dementia paralytica (557 deaths), multiple sclerosis (446 deaths) and finally, but much less frequently, tabes dorsalis (211 deaths).

Mortality statistics provide a clearer picture of the relative incidence of various diseases than can be obtained from computations of living persons affected with the same disorders. Diseases that cause sudden death are likely to be underestimated statistically as opposed to chronic nervous disorders, if the sole basis of comparison is the number of contemporaneous living patients. The mentioned 1,260 fatal cases of epilepsy in a five year period is equivalent to 5.1 per thousand of the total number of deaths occurring within the same period. The corresponding proportions per thousand for other diseases are paralysis agitans 2.5, dementia paralytica 2.27, multiple sclerosis 1.8 and tabes 0.86. The two sexes are about equally represented among persons dying of paralysis agitans. Among patients who succumbed to epilepsy, men preponderated in a ratio of 6 to 5. Among those dying of the two metasyphilitic diseases there was an even greater preponderance of male patients; the ratios were 2 to 1 for tabes and approximately 12 to 5 for paralysis. Women were more frequently victims of multiple sclerosis in the ratio of 17 to 10. The high mortality of epileptic patients between the ages of 20 and 30 was striking; 21 per cent of deaths from epilepsy of men and 12 per cent of the deaths of women occurred during an attack. Attention was called to the low suicide rate in persons affected with chronic nervous disorders. Suicide accounted for only 1.65 per cent of the fatalities covered by the survey, whereas for all Switzerland in recent years about 2.4 per cent of the total deaths have been by suicide.

Exploration with the Gastroscope

At the medical clinic of Basel University, of which Prof. Rudolf Staehelin is director, data on the use of the gastroscope have been assembled and discussed by Dr. Kapp before the Basel Medical Society. Rigid gastroscopes of small caliber cause fewer injuries than those of larger caliber such as were formerly used. The former, however, can be of service in only about 85 per cent of the cases, since under no circumstances can the introduction of the instrument be forced because of the danger of lacerations. Flexible gastroscopes have the advantage that with reasonable care no injuries will be incurred. Their disadvantages are that if the curve exceeds 45 degrees the view will be obstructed, which will also occur if the lamp

is not bright or the window is smeared. The tubes, too, are considerably thicker. Gastroscoy is to be regarded as less indicated in carcinoma or ulcer, which diseases can be usually well diagnosed by other means, than in the various forms of gastritis.

Kapp has also devised an anoscope by means of which it is possible, when a section of the wall of the instrument is removed, to obtain a good view of the lowest intestinal region.

MOSCOW

(From Our Regular Correspondent)

May 25, 1937.

No Smallpox in the Soviet Union

Vaccination was not compulsory in tsarist Russia; every year more than 100,000 persons became infected with smallpox. During the World War and the civil war the number of patients reached thirty in each 10,000 persons. The Soviet government issued in 1919 and 1924 two decrees about compulsory vaccination. Smallpox then gradually diminished; 14,154 smallpox patients were registered throughout the country in 1927 and only 400 in 1936. There were no registered patients in the Soviet Union during January and February 1937. About 40,000,000 persons are vaccinated and revaccinated every year. In middle Asia in 1936 a special investigation was made to find whether any patients were hidden by the population, but no instances of such hiding were found. It is interesting to note that in India, during the period January to September 1936, 203,107 cases of smallpox were registered and in the United States 6,254 cases.

Prostitution in the Soviet Union

In 1913 there were 20,000 registered prostitutes in Moscow. In 1931 only 700 women engaged in prostitution were found in Moscow and in 1932 only 470. The Women's Curative Labor Prophylactorium of Moscow, an establishment for combating prostitution, in August 1936 showed the number of prostitutes to be about 100. The function of the prophylactorium is to help these women to return to normal life. In 1928, says Dr. Mark S. Danishevsky, director of the Moscow Prophylactorium, there were forty prophylactoriums in the Soviet Union. After 1931 four were closed in Moscow and twelve in other parts of the country. Now there are only six in the whole country, quite enough to take care of the few remaining homeless women.

The Soviet state combated prostitution under the slogan "Fight Prostitution, not the Prostitute." The campaign was begun in 1922, by the People's Commissariat of Health, Labor and Trade Union. It prevented prostitution by the following regulations: No enterprise could discharge women employees who were without means of substance, single girls without parents, pregnant women or women with children. Against existing prostitution, measures were taken such as (a) special supervision at railroad stations, hotels, workers' dormitories, ports and public bath houses, (b) several legal measures against all agents and agencies of prostitution, and (c) establishment of free dispensaries for treating venereal diseases.

In 1929 the government issued a decree to hasten the abolition of prostitution. It recommended the training of women for more highly qualified work in industry, encouraged the employment of women in all branches of production, called for intensification of antiprostitution propaganda, and demanded punishment of persons guilty of debauching young girls. In addition, the decree suggested establishing two farms near Moscow for reclaimed women requiring work on the land, explained how the work of the forty prophylactoriums of the country could become more effective, and outlined plans for founding an institute of labor education for prostitutes. With the aim of bringing former prostitutes back to useful socialist labor, the Women's Curative Labor Prophylactorium was established. It

was decided first that women must be quite free to enter without any semblance of force. The severest punishment allowed was expulsion. Thus no women entered the prophylactorium other than voluntarily. No funds from private sources were accepted for this purpose. All medical service care and attention to the patients and all medicines had to be free of charge, the state meeting all the costs. Finally a woman was required to remain at the prophylactorium for an average of two years and could be discharged only when the institution had found her a job and a room outside. In the rehabilitation of a street walker, after her disease has been cured in the main prophylactorium, she goes to the affiliate prophylactorium in another locality, where there are factories and shops for women who had worked before. The institutions continue to watch over their pupils for a given period. The Moscow Prophylactorium has sent out about 2,500 women. Thirty-two per cent have been several times rewarded for good work at their place of employment. Seventeen per cent are students in technical schools and institutes. Sixty-five per cent have married and 44 per cent are now mothers.

Expenditure on Public Health in 1937

According to the decision of the Central Executive Committee and the Council of People's Commissars of the Union of Socialist Soviet Republics issued March 29, 1937, concerning the national economic plan of the country for 1937, the total expenditure on public health is fixed at 7,528.1 million rubles, against 5,803.5 million rubles in 1936. Capital investments in public health will be equal to a billion rubles. About 574 million rubles of this sum will be spent on building maternity homes, nurseries and milk kitchens. The remainder will go to building new hospitals, research institutes, sanatoriums and medical schools. The total number of hospital beds in 1937 will be 619,800, as against 564,000 in 1936. At the beginning of the school year a number of medical institutes in Archangel, Gorky, Ijevsk, Ivanovo, Krasnodar and other towns will be greatly enlarged. There will be erected thirty new buildings and six clinics, as well as thirty-nine new schools for middle medical staffs. This year the building will be completed in Moscow of new houses for the Central Health Resort Institute and for the Disinfection Institute. Twenty-five million rubles will be spent for the building of the All Union Institute of Experimental Medicine. New buildings for the tropical institute, traumatologic institutes, Institute of Epidemiology and Microbiology, Institute of Oncology and Institute of Blood Transfusion will also be erected. The number of physicians at the end of the third five year plan will be 176,000, in comparison with 104,000 in the present year.

Marriages

CHARLES ALLEN EASLEY JR., Richmond, Va., to Miss Elizabeth Fitzgerald of Danville, in May.

H. PRESTON PALMER to Miss Helen Theresia Rosen, both of Scott City, Kan., Dec. 25, 1936.

JACOB J. KIRSHNER to Miss Estelle Mildred Varbalow, both of Philadelphia, February 21.

WILLIAM J. BUCK, Belle Glade, Fla., to Miss Sue Florence of Palm Beach, May 22.

JESUS M. QUINONES, Vieques, P. R., to Miss Santin Olmo of Barceloneta, June 3.

CARL A. KUNATH to Miss Rachel Dorothy McDaniel, both of Iowa City, June 5.

ROSCOE M. NEEDLES, Anita, Iowa, to Miss Ida Sabo of Canton, Ohio, May 20.

PAUL L. DEWAELE to Miss Geraldine E. Hartz, both of Detroit, May 5.

JAMES L. CHALKER to Miss Mary C. Fore, both of Ocala, Fla., April 14.

Deaths

Charles Sumner Benedict, New Rochelle, N. Y.; University of Vermont College of Medicine, Burlington, 1882; University of the City of New York Medical Department, 1883; member of the Medical Society of the State of New York; past president of the Westchester County Medical Society; formerly member of the city of New York board of health; aged 80; died, April 15, of carcinoma of the prostate and osteitis deformans.

Thomas Patton Cheesborough, Asheville, N. C.; University of the City of New York Medical Department, 1891; member of the Medical Society of the State of North Carolina; veteran of the Spanish-American and World wars; aged 67; died, April 3, of internal hemorrhage due to ruptured varicosities of the esophagus and cirrhosis of the liver.

Cyrus Fletcher Boyers, Morgantown, W. Va.; Barnes Medical College, St. Louis, 1896; member of the West Virginia State Medical Association; at various times city and county health officer, and member of the city council; aged 63; on the staff of the Monongalia County Hospital, where he died, April 14, of lobar pneumonia.

Frederick Lewis Blair, Providence, R. I.; University of Maryland School of Medicine, Baltimore, 1911; member of the Rhode Island Medical Society; veteran of the Spanish-American and World wars; formerly on the visiting staff of the Homeopathic Hospital; aged 59; died, April 24.

Charles B. Almond, Winder, Ga.; University of Georgia Medical Department, Augusta, 1891; member of the Medical Association of Georgia; for many years a member of the board of education and board of health; aged 66; died, April 16, in the Emory (Ga.) University Hospital.

Elwin H. Ashcraft, Coudersport, Pa.; College of Physicians and Surgeons, Baltimore, 1881; member of the Medical Society of the State of Pennsylvania; for many years a member of the state board of health, county coroner and medical inspector; aged 82; died, April 12.

John Ellis Ashcraft, Fayetteville, N. C.; University of the City of New York Medical Department, New York, 1887; member of the Medical Society of the State of North Carolina; formerly a member of the state board of health; aged 76; died, April 26, of heart disease.

Frank Alsworth Waples, Houston, Texas; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; fellow of the American College of Physicians; formerly on the visiting staff of the Southern Pacific Hospital; aged 69; died, March 4.

Francis Van Vechten Wethey Ⓢ Enfield, N. H.; University of Vermont College of Medicine, Burlington, 1924; served during the World War; aged 43; died, March 5, in the Mary Hitchcock Memorial Hospital, Hanover, of hypertensive heart disease.

Walter Sidney Swan, Harrisburg, Ill.; Jefferson Medical College of Philadelphia, 1877; member of the Illinois State Medical Society; for many years a member of the board of education; aged 82; died, March 28, of cardiorenal degeneration.

William Ashton Reese, Petersburg, Va.; Medical College of Virginia, Richmond, 1915; member of the Medical Society of Virginia; served during the World War; city physician; on the staff of the Petersburg Hospital; aged 47; died, March 21.

Wily Simeon Adams, Cherokee, Ala.; University of Georgia Medical Department, Augusta, 1908; member of the Medical Association of the State of Alabama; aged 52; died, April 1, in the South Highlands Infirmary, Birmingham.

James M. Williams, Malvern, Ark.; Memphis (Tenn.) Hospital Medical College, 1895; member of the Arkansas Medical Society; past president of the Hot Spring County Medical Society; aged 81; died, March 17, of pneumonia.

Thomas Jay Robeson, Bloomington, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; veteran of the Spanish-American War; aged 74; died, March 26.

Anna Marie Mosgrove, San Francisco; Cooper Medical College, San Francisco, 1899; member of the Associated Anesthetists of the United States and Canada; aged 85; died, March 26, of coronary occlusion.

Gibson Reynolds, Montgomery, Ala.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Association of the State of Alabama; aged 60; died, March 13, of heart disease.

Elmer Clinton Bruch, Bethlehem, Pa.; Baltimore Medical College, 1891; Jefferson Medical College of Philadelphia, 1892; aged 67; for many years on the staff of St. Luke's Hospital, where he died, April 16.

Robert Bethune Warren, Deatsville, Ala.; Medical Department of the University of Alabama, Mobile, 1903; aged 64; died, March 17, in the Fitts Hill Hospital, Montgomery, of coronary occlusion.

J. Henry Wishard, Leitersburg, Md.; Jefferson Medical College of Philadelphia, 1883; aged 80; died, March 27, in the Waynesboro (Pa.) Hospital, of cerebral hemorrhage and bronchopneumonia.

Jacob C. Solomon Ⓢ Los Angeles; American Medical College, St. Louis, 1893; formerly professor of ear, nose and throat, California Eclectic Medical College; aged 72; died, March 15, of arteriosclerosis.

Henry J. Wolf, New York; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1884; on the staff of the Lebanon Hospital; aged 75; died, March 22, in the Lenox Hill Hospital.

John Marquiss Blair, Houston, Texas; Rush Medical College, Chicago, 1884; formerly medical director and owner of a sanatorium bearing his name; aged 78; died, April 2, in a local hospital.

Harriet Josephine Cossmann, Stapleton, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1929; aged 33; died, April 24, in Asheville, N. C., of pulmonary tuberculosis.

Joseph H. Schnurrenberger, Austintown, Ohio; Western Reserve University Medical Department, Cleveland, 1892; for many years a member of the school board; aged 71; died, March 26.

Joseph Henry Akers, Attleboro, Mass.; Dartmouth Medical School, Hanover, N. H., 1884; member of the Rhode Island Medical Society; aged 80; died, April 4, in the Sturdy Memorial Hospital.

Edward Howard, San Diego, Calif.; Harvard University Medical School, Boston, 1887; aged 82; died, March 19 in Santee, of bronchopneumonia, cerebral hemorrhage and arteriosclerosis.

Elizabeth Mattson Clark, New Brunswick, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1893; aged 91; died, April 4, of myocarditis and auricular fibrillation.

James Josiah Martin, Long Beach, Calif.; Eclectic Medical Institute, Cincinnati, 1898; member of the California Medical Association; aged 71; died, March 21, of cerebral embolism.

Frederick Henry Charles, Cumberland, Md.; University of Maryland School of Medicine, Baltimore, 1886; aged 75; died, March 19, of arterial hypertension and myocarditis.

Timothy Joseph Sullivan, Newton, Mass.; Harvard University Medical School, Boston, 1902; aged 69; died, March 28, of chronic myocarditis and arteriosclerosis.

Ruel Bidwell Karibe, New York; University of Pennsylvania Department of Medicine, Philadelphia, 1892; served during the World War; aged 66; died, March 30.

Alfred Montreuil, Prince Albert, Sask., Canada; M.B., Laval University Faculty of Medicine, Quebec, Que., 1908, and M.D., 1910; aged 51; died, March 1.

William Otto Winter Ⓢ St. Louis; Marion-Sims College of Medicine, St. Louis, 1897; aged 67; died, March 31, in the Lutheran Hospital, of heart disease.

Selwyn Kent Smith, Belize, Honduras, Central America; University of Western Ontario Medical School, London, 1924; aged 37; died, March 7.

William James Hanford, Los Angeles; New York Homeopathic Medical College, 1883; aged 78; died, March 8, of arteriosclerosis.

Clarence Simon Atwood, Deming, N. M.; University of Buffalo School of Medicine, 1935; aged 32; died, April 28, of pneumonia.

Louis A. Bowling, Charleston, W. Va.; Kentucky School of Medicine, Louisville, 1897; aged 76; died, April 17, of pneumonia.

Joseph Vincent Power, Spencer, Tenn.; St. Louis College of Physicians and Surgeons, 1909; aged 64; died, March 8.

Friede Feige Van Dalsem, Huron, S. D. (licensed in South Dakota in 1887); aged 92; died, March 6, of senility.

Francis George Wallbridge, Belleville, Ont., Canada; Trinity Medical College, Toronto, 1892; died, March 4.

Correspondence

FACTORS IN LACK OF COAGULATION IN HEMOPHILIA

To the Editor:—In the May 15 issue of THE JOURNAL there appeared an editorial on the antihemorrhagic factor in foods, in which the following statements were made: "In hemophilia the deficient functioning of the thrombocytes was pointed out earlier by Howell and Cekada, supplementing Howell's earlier theory regarding the rôle of prothrombin in blood clotting. The latter view was supported by recent work of Patek and Taylor."

I believe that this statement is somewhat inaccurate. In 1914 Howell concluded that the prolonged coagulation in hemophilia was due to a subnormal amount of prothrombin. In 1926 Howell and Cekada dismissed this theory and proposed that the clotting abnormality resided in a peculiar stability of the platelets. More recent studies (Patek, A. J., Jr., and Stetson, R. P.: *J. Clin. Investigation* 15:531 [Sept.] 1936. Patek, A. J., Jr., and Taylor, F. H. L., *ibid.* 16:113 [Jan.] 1937) imply that the platelets in hemophilia are normal and, secondly, that the plasma of hemophilia is deficient in a substance present in the noncellular, normal plasma. This clot-accelerating substance is precipitated with the prothrombin complex, but it is not identified as prothrombin. Indeed, studies in progress imply that the two are distinct.

ARTHUR J. PATEK JR., M.D., New York.

Clinical Associate, Research Division for
Chronic Disease, Welfare Island, City
of New York Department of Hospitals.

CHRONIC ZINC POISONING

To the Editor:—In his recent paper (Chronic Zinc Poisoning, THE JOURNAL, January 30) Dr. du Bray has apparently overlooked the extensive experimental and clinical studies by myself and my associates dealing with the general biologic aspects of zinc. Not only did these investigations include the development of accurate methods for determining zinc in biologic material and its significance, but special attention was paid to the medical history, physical examination and laboratory studies in a group of men exposed for a long period to zinc compounds uncontaminated by frequently associated impurities:

1. Drinker, Philip: Certain Aspects of the Problem of Zinc Toxicity, *J. Indust. Hyg.* 4: 177-197 (Aug.) 1922.
2. Lutz, R. E.: The Determination of Small Amounts of Zinc in Materials of Organic Nature: A Microchemical Method Based on the Fluorescence of Zinc Salts with Urobilin, *J. Indust. Hyg.* 7: 273-290 (June) 1925.
3. Thompson, Phebe K.: The Recovery of Small Amounts of Zinc from Biologic Material Ashed by the Incineration Process, *J. Indust. Hyg.* 7: 358-370 (Aug.) 1925.
4. Drinker, C. K.; Drinker, Philip, and Drinker, Katherine R.: An Effective Method for Conducting Experiments on Dust Inhalation, *J. Indust. Hyg.* 7: 440-443 (Oct.) 1925.
5. Fairhall, L. T.: The Estimation of Zinc in Biologic Material, *J. Indust. Hyg.* 8: 165-176 (April) 1926.
6. Lutz, R. E.: The Normal Occurrence of Zinc in Biologic Materials: A Review of the Literature and a Study of the Normal Distribution of Zinc in the Rat, Cat and Man, *J. Indust. Hyg.* 8: 177-207 (April) 1926.
7. Drinker, Katherine R., and Collier, E. S.: The Significance of Zinc in the Living Organism, *J. Indust. Hyg.* 8: 257-269 (June) 1926.
8. Drinker, Philip; Thomson, R. M., and Finn, Jane L.: The Effect of Turbulent Air Motion and of Humidity on the Stability of Dust, Fume, and Smoke Clouds, *J. Indust. Hyg.* 8: 307-313 (July) 1926.
9. Batchelor, R. P.; Fehnel, J. W.; Thomson, R. M., and Drinker, Katherine R.: A Clinical and Laboratory Investigation of the Effect of Metallic Zinc, of Zinc Oxide and of Zinc Sulfide upon the Health of Workmen, *J. Indust. Hyg.* 8: 322-363 (Aug.) 1926.
10. Fairhall, L. T.: The Nutritive Value of Inorganic Substances: I. A Study of the Normal Zinc Metabolism with Particular Reference to the Calcium Metabolism, *J. Biol. Chem.* 70: 495-512 (Oct.) 1926.
11. Barreto, J. B.; Drinker, Philip; Finn, Jane L., and Thomson, R. M.: Masks and Respirators for Protection Against Dusts and Fumes, *J. Indust. Hyg.* 9: 26-41 (Jan.) 1927.
12. Sturgis, C. C.; Drinker, Philip, and Thomson, R. M.: Metal Fume Fever: I. Clinical Observations on the Effect of the Experimental Inhalation of Zinc Oxide by Two Apparently Normal Persons, *J. Indust. Hyg.* 9: 88-97 (March) 1927.

13. Drinker, Philip; Thomson, R. M., and Finn, Jane L.: Metal Fume Fever: II. Resistance Acquired by Inhalation of Zinc Oxide on Two Successive Days, *J. Indust. Hyg.* 9: 98-105 (March) 1927.

14. Drinker, Katherine R.; Thompson, Phebe K., and Marsh, Marion: An Investigation of the Effect of Long-Continued Ingestion of Zinc, in the Form of Zinc Oxide, by Cats and Dogs, Together with Observations upon the Excretion and the Storage of Zinc, *Am. J. Physiol.* 80: 31-64 (March) 1927.

15. Thompson, Phebe K.; Marsh, Marion, and Drinker, Katherine R.: The Effect of Zinc Administration upon Reproduction and Growth in the Albino Rat, Together with a Demonstration of the Constant Concentration of Zinc in a Given Species, Regardless of Age, *Am. J. Physiol.* 80: 65-74 (March) 1927.

16. Drinker, Katherine R.; Fehnel, J. W., and Marsh, Marion: The Normal Excretion of Zinc in the Urine and Feces of Man, *J. Biol. Chem.* 72: 375-383 (March) 1927.

17. Drinker, Philip; Thomson, R. M., and Finn, Jane L.: Metal Fume Fever: III. The Effects of Inhaling Magnesium Oxide Fume, *J. Indust. Hyg.* 9: 187-192 (May) 1927.

18. Drinker, Katherine R.; Thompson, Phebe K., and Marsh, Marion: An Investigation of the Effect upon Rats of Long-Continued Ingestion of Zinc Compounds, with Especial Reference to the Relation of Zinc Excretion to Zinc Intake, *Am. J. Physiol.* 81: 284-306 (July) 1927.

19. Drinker, Philip; Thomson, R. M., and Finn, Jane L.: Metal Fume Fever: IV. Threshold Doses of Zinc Oxide, Preventive Measures, and the Chronic Effects of Repeated Exposures, *J. Indust. Hyg.* 9: 331-345 (Aug.) 1927.

20. Drinker, Philip; Thomson, R. M., and Finn, Jane L.: Quantitative Measurements of the Inhalation, Retention and Exhalation of Dusts and Fumes by Man: I. Concentrations of 50 to 450 Mg. per Cubic Meter, *J. Indust. Hyg.* 10: 13-25 (Jan.) 1928.

21. Drinker, Katherine R., and Drinker, Philip: Metal Fume Fever: V. Results of the Inhalation by Animals of Zinc and Magnesium Oxide Fumes, *J. Indust. Hyg.* 10: 56-70 (Feb.) 1928.

22. Fairhall, L. T., and Hoyt, L. H.: The Excretion of Zinc in Health and Disease, *J. Clin. Investigation* 7: 537-541 (Oct.) 1929.

23. Fairhall, L. T., and Walker, L. C.: Foil-Wrapped Food Material: I. An Investigation Concerning the Use of Zinc Foil in the Food Industries, *Food Industries*, 1929, pp. 642-645.

24. Fairhall, L. T., and Richardson, J. R.: The Nephelometric Analysis of Zinc, *J. Am. Chem. Soc.* 52: 938-944, 1930.

25. Drinker, C. K., and Fairhall, L. T.: Zinc in Relation to General and Industrial Hygiene, *Pub. Health Rep.* 48: 955-961 (Aug. 11) 1933.

The following is a partial summary of the clinical studies:

"Careful and detailed clinical and laboratory studies on twenty-four workmen exposed over periods of time varying from two to thirty-five and one-half years, to the inhalation of varying concentrations of zinc in the form of zinc oxide, zinc sulfide or fine metallic zinc dust (manufactured, in the main, from ores conspicuously low in lead and low in cadmium) have revealed no acute or chronic illnesses ascribable to zinc. The workmen, chosen to represent varying types and degrees of exposure to zinc, proved on the whole a vigorous, healthy lot of men, giving no histories of significant past illnesses and showing only such general physical conditions as one would expect to find in any similar group of men of the same ages, of the same social status, and doing approximately the same amount of physical work in an atmosphere with a moderate amount of dust but with no exposure to zinc. This fact is especially significant, indicating, as it does, that ill health ascribed to zinc, particularly the so-called chronic zinc poisoning often referred to in the literature, is in all probability due to toxic impurities, such as lead, cadmium, arsenic and antimony, which commonly contaminate zinc ores, and not to zinc itself.

"Our study demonstrates that zinc workers absorb and excrete zinc in amounts considerably over the normal, and that they maintain constantly a blood zinc content slightly higher than normal. It is apparent, however, from our investigation that abnormal amounts of zinc may enter and leave the body for years without causing symptoms or evidence, which can be detected clinically or by laboratory examinations, significant of gastro-intestinal, kidney or other damage. The fact should be stressed that the amounts of zinc in the urine and the feces of zinc workers represent increased amounts of a normal urinary constituent, and not the presence of a metal abnormal to living cells and to metabolic processes."

Our subsequent experience with these men has confirmed these conclusions. Metal fume fever (a reaction common after the inhalation of finely divided inorganic and organic compounds, magnesium oxide or threshing dust, for example, occurs with rare exceptions after only initial exposure to zinc oxide. The discomfort of those affected is so slight that it is difficult to persuade them to report for examination and study. There has been no absence from work from such reactions. Contrary to the quoted experiences of Dr. McCord (who dealt with zinc mixtures of admittedly unknown composition), we found the

relative incidence of gastric and duodenal ulcer in the group handling zinc products lower than among those otherwise engaged.

Several features of the case report by Dr. du Bray are noteworthy:

1. The slight hypochromic anemia and basophilia reported were not observed in our series.

2. The subjective improvement of the patient after returning to the country is essentially that which many of us would obtain on vacation.

3. Most surprising was the absence of severe caustic damage to the skin from zinc chloride, well known for its destructive effects when in direct contact with tissue. One would almost as readily expose a workman's skin to silver nitrate or trichloroacetic acid as to zinc chloride.

4. The very sensitive methods for the estimation of zinc in biologic materials have never demonstrated skin absorption of zinc compounds.

CECIL K. DRINKER, M.D., Boston.

Dean and Professor of Physiology, Harvard
University School of Public Health.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POSSIBLE ESSENTIAL EPILEPSY AS CAUSE OF DEATH

To the Editor:—Please advise me what diseases might have been responsible for death in the following case: A primipara, aged 25, three months pregnant, suddenly went into a coma and died in about six hours without regaining consciousness. There were no convulsive movements; there was marked frothing at the mouth but no vomiting. There were two previous attacks, ten days and three weeks previously. The first, which had a duration of ten minutes, was characterized by restlessness and confusion. There was no loss of consciousness. In the second one she lost consciousness for fifteen minutes. I was unable to arouse the patient. The extremities were flaccid. The pulse rate was 70. Ronchi were present throughout the chest. The blood pressure was 120 systolic, 80 diastolic. The rectal temperature was 97. There were no burns about the mouth. There was no nystagmus. The pupils were moderately dilated but equal in size. Abdominal examination did not detect masses or muscle spasm. The kidneys were not palpable. All reflexes were gone. Urinalysis was entirely negative (unfortunately, no blood sugar was taken). The autopsy, which was limited to the brain, showed no abnormality (gross examination only). The patient was in good health prior to the present illness. There was no appreciable change in her status during the six hours that she lived. Please omit name.

M.D., New York.

ANSWER.—From the evidence presented it is impossible to be certain as to the cause of death in the case described. If one omits suicidal poisoning, of which there is no direct indication, the most likely of several possible causes would seem to be essential epilepsy.

The fact that the patient was pregnant immediately suggests eclampsia, but this disease is improbable for several reasons. Eclampsia is rare before the sixth month of gestation; this woman had been pregnant only nine weeks when her symptoms first appeared. The arterial pressure was normal; there was no albumin, blood or casts in the urine. Edema, hyperemia, thrombosis and hemorrhage, often found in eclamptic brains, were apparently absent. However, the lack of more complete anatomic evidence prevents absolute exclusion of eclampsia gravidarum as the cause of this death. And in the absence of examination of the blood, hypoglycemia cannot be excluded as a possible cause.

Heart block of sufficient grade to kill is unlikely in the presence of a pulse rate of 70 per minute (one assumes it was regular) and a normal blood pressure. The same can be said for the rarer and more bizarre disturbances of cardiac mechanism; for example, recurrent ventricular fibrillation. Frothing at the mouth and rhonchi throughout the chest mean pulmonary edema. While this might be of cardiac origin, it is also characteristic of convulsive states in general, including epilepsy.

Essential epilepsy beginning at 25 years of age is by no means rare. Coma, dilated pupils, absent reflexes, flaccid limbs, all are part of the epileptic fit. As a cause of death it has been described frequently. Information obtained from more or less complete postmortems in such cases is commonly meager. However, hyperemia of the brain is regularly present and often has been marked.

It seems, therefore, that although a positive diagnosis of essential epilepsy is not permissible there is more evidence in favor of it than of any other condition that readily comes to mind.

FUNCTIONAL VASOSPASTIC VASCULAR DISTURBANCE

To the Editor:—I will appreciate greatly any information or suggestion that you can give me regarding the etiology, the diagnosis or especially the treatment in a case in which the hands and feet are always cold and sweating. The patient is a woman, aged 22, about 5 feet 9 inches (175 cm.) tall and vigorous in appearance. She is a college student and engages in school athletics very successfully. There is no inactivity of the bowels and no menstrual irregularity or pain. She weighs 159 pounds (72 Kg.) and has never weighed more. Physical examination is negative except for a chronic infection of the tonsils of which the patient has been unaware. Much pus can be expressed from the tonsils. The blood pressure is 125 systolic and from 10 to 20 diastolic. Evidently there is a marked vasomotor abnormality. Is it likely that there is a glandular factor in the etiology? Would tonsillectomy promise anything of relief from the complaint. Please omit name.

M.D., Washington.

ANSWER.—The condition described belongs to that indefinite class of vasospastic vascular disturbances probably functional in origin. There is no definite etiology. In some cases focal infection may play a part, in other cases some form of neurosis. One might consider Raynaud's disease and acrocyanosis, although there are no symptoms characteristic of these in this report. Hypothyroidism or hyperthyroidism might be looked for. One might look for a cause for the high pulse pressure. It is suggestive of aortic disease at the age of the patient, although the physical examination is described as negative.

It would be advisable to test for peripheral vascular permeability with injections of histamine to rule out actual obstruction. In the absence of any positive observations, mecholyl in 200 mg. doses two to three times daily might be tried. Occasionally abdominal cramps follows its use. In some patients good results have been obtained with injections of pancreatic tissue extract. It comes in ampules. Physical therapy in the forms of massage, active and passive exercise, exposure to a therapeutic lamp or the passive vascular exercise variable pressure cabinet may be tried. In cool weather, woolen gloves and woolen stockings may be required if the sensation of cold is disagreeable.

STERILITY

To the Editor:—A man, aged 30, and wife aged 31, complain of sterility. The past history is irrelevant. Habits and sexual experiences are normal during three years of married life, except for frigidity on the part of the wife. Physical examination of the wife revealed hyperthyroidism, which was corrected. Physical examination of the husband revealed no pathologic changes. Laboratory examinations gave negative results. Analysis of the semen revealed a volume of 4 cc., appearance and viscosity normal, and pH 8.2. The motility after four hours was excellent, after twelve hours very good, after thirty-six hours from 12 to 15 motile spermatozoa per high power field. The count per cubic centimeter was 80,000,000, total for ejaculate 320,000,000, and 90 per cent were morphologically normal. In spite of repeated semen analysis, post-coitus specimens revealed no motile spermatozoa. Please omit name.

M.D., North Carolina.

ANSWER.—Undoubtedly something in the vagina destroys the motility of the spermatozoa. There are two possibilities. Either the vaginal secretion or the cervical contents are inimical to the spermatozoa. Spermatozoa survive best in an alkaline medium. The endocervical contents are practically always alkaline and hence are not hostile to the spermatozoa. On the other hand, the vaginal secretion is normally acid and if there is an excessive acidity the spermatozoa may not retain their motility very long. This is especially true if for some reason the spermatozoa are not deposited on the cervix during the ejaculation. Normally vaginal acidity plays no part at all, provided spermatozoa reach the cervix promptly. If, however, the cervix is not readily accessible to the spermatozoa, as for example in cases of anteversion, anteversion, elongation or prolapse of the cervix, these abnormalities may have to be corrected. Nevertheless a simple procedure to carry out first is to have the patient take a prolonged alkaline douche each time just before coitus is to take place. This may diminish the acidity of the vagina sufficiently to permit the spermatozoa to reach the cervical canal. If alkaline douches do not help overcome the sterility in this case, it is best to inseminate the spermatozoa directly into the uterus. This is a simple pro-

cedure but it must be carried out under aseptic precautions as possible. The semen should be brought as soon after ejaculation as possible in a clean cold cream jar which has previously been boiled and kept clean. It is best to inseminate sperm every second day from the tenth to the eighteenth day of the menstrual cycle. Only a few drops should be inserted into the uterine cavity just beyond the internal os through a uterine cannula.

POSSIBLE CHRONIC PANCREATITIS

To the Editor:—A woman, aged 57, complains of distress in the abdomen following the taking of food, hot flashes, weakness, loss of weight and strength, and spells of nausea and vomiting. Her trouble first started with the hot flashes when she stopped menstruating about ten years ago. These have persisted, coming regularly about every day and night since then, having moderated somewhat in the last two or three years. During the summer she wakes up practically every time she has one of these, but during the winter she usually sleeps rather well. She has been given theelin (estrone) in large dosages with no effect. Her other symptoms are of relatively recent onset. About a year ago she began having distress off and on following her meals. This has progressed until at the present time she has distress following almost every meal but seemingly worse in the evening. This distress seems to be gas in the large bowel and does not seem to be associated with any particular type of food. She has found nothing that will give relief. She has become weak and tired and worn out in the past six months, possibly because she has eaten so little. She lives on a farm and used to do considerable outside work as well as housework; now she cannot do even her housework. She has lost approximately 30 pounds (13.6 Kg.) in the last eight months. On several occasions in the past six months she has had spells of extreme nausea, vomiting and diarrhea, and on at least three occasions following the vomiting and diarrhea has been unconscious. The worst spell happened about two months ago. About two hours after a light evening meal she started vomiting and in about three hours became unconscious and was unconscious for more than forty-five minutes. She had some diarrhea and the vomiting continued until noon the next day. Following this episode she was in bed for about two weeks. She had no fever and no tenderness or pain in the abdomen. At times she has an extreme nausea and feels as if she would have vomiting and diarrhea but doesn't. Sometimes these spells of nausea last from eighteen to twenty-four hours. Always after these spells she is weak and has to stay in bed. Her bowels have been very regular; there has not been constipation. The gallbladder was removed in 1932 following four or five years of rather typical symptoms of cholecystitis. Following this she was unusually well for three years. As a girl she remembers having had numerous spells of diarrhea. Her father died at the age of 74 and her mother at the age of 75, both of carcinoma of the stomach. One sister has a multiple diverticulitis, for which it was necessary to do a colostomy several years ago. One sister has had her gallbladder removed. Two brothers have had peptic ulcers. Several other brothers and sisters have various indefinite gastro-intestinal symptoms. The patient appears tired; the skin has a somewhat darker appearance than it used to, although this is not noticeable to any one who did not know her previously. Her skin seems somewhat dry. General physical examination is negative, the heart is normal, the blood pressure 125 systolic and 80 diastolic on repeated readings. The abdomen is normal except for some slight tenderness over the colon. The generative organs appear to be normal. The red blood cells number 4,500,000, hemoglobin is 92 per cent and the white blood cells number 5,750, with 78 per cent polymorphonuclears and 21 per cent lymphocytes. The urine is normal on repeated examinations. The stools are negative for blood on repeated examinations. A basal metabolism test gave a reading of plus 25 but the technician felt that this reading was not correct as the patient was nervous and restless all during the time it was being done. It was repeated the next morning with a reading of minus 20. The blood sugar one morning was found to be 38 mg. per hundred cubic centimeters, on another morning 43 mg. Following this a dextrose tolerance test was done with the following readings: fasting blood sugar 38 mg., one-half hour 50 mg., one hour 143 mg., two hours 79 mg., three hours 77 mg., four hours 75 mg., five hours 43 mg., six hours 60 mg. The blood nonprotein nitrogen was normal. X-ray examinations of the stomach gave normal results. A colon series showed considerable spasticity of the ascending and transverse colon, with loss of haustration of the descending colon. She was seen by two competent internists, who could not agree on the diagnosis. One felt that probably the condition was endocrine imbalance with possibly some hyperinsulinism. The other felt that most of the symptoms could be explained on the basis of colitis and that the low blood sugar readings were simply due to the low food intake. She was placed on a smooth diet relatively high in fats and low in carbohydrates with frequent feedings. She was given belladonna and phenobarbital before meals and placed at rest. She has been on this treatment for about three weeks and has made some progress but not as much as was hoped for. She still has distress, although not as marked and not every day. She has had two spells of nausea, which were of relatively short duration. She has not regained any strength although she has been taking much more food than previously and she also continues to lose weight. Any suggestions you might have as to diagnosis or treatment would be greatly appreciated. Please omit name.

M.D., Iowa.

ANSWER:—The gastro-intestinal symptoms would fit in with disease of the pancreas—possibly chronic pancreatitis. Colonic irritability, manifested by abdominal distress, cramps, nausea or vomiting, with or without diarrhea, is frequently associated with disease of the pancreas. The recurring attacks of unconsciousness, the low blood sugar readings, especially at the five and six hour periods, and the fasting low blood sugar are certainly sufficiently characteristic to suggest the diagnosis of

hyperinsulinism. It is hardly probable that disease of the adrenals with hypoglycemic reactions need to be considered because of the normal pressure and the absence of other symptoms.

The history of gallbladder inflammation followed by a cholecystectomy even though followed by three years of well being, does not of necessity rule out the possibility of pancreatitis. The subsequent development of hypoglycemic reactions of pancreatic origin creates a complicated picture which theoretically might be explained in one of two ways. There may be two distinct processes, although related, a pancreatic neoplasm which may compress the pancreatic duct distal to the ampulla and thereby lead to acinous atrophy and islet hypertrophy. The latter may cause hyperinsulinism. Or she may have a small islet tumor causing hyperinsulinism. The diet consists of a relatively low carbohydrate content in the form of 5 to 10 per cent vegetables and fruits, fruit juices, and a high fat diet.

Seale Harris recommends in cases of loss in weight from 2 to 4 ounces of ice cream every three hours while awake. Harris further states in his most recent article on hyperinsulinism (*Ann. Int. Med.* 10:514 [Oct.] 1926) that, if the patient does not respond to this regimen, exploration of the pancreas for an adenoma is advisable. Insulin has been used by some. Reference to the article mentioned will yield information as to the various medicaments used and the rationale of their use.

PHLEBITIS WITH SWELLING OF LEG

To the Editor:—A man, aged 78, has considerable edema of the right leg, extending well above the knee, and it is becoming increasingly hard for him to have shoes fitted. Elastic stocking when put on in the morning, at a time when the edema is somewhat less, causes almost painful swelling over the knee and in the thigh. Otherwise apparently there is but little discomfort from it. There are a number of thin walled tortuous varicosities in the skin, but no other veins are visible. Because of the thinness of the walls of these blood vessels, which are close under the epidermis, the injection treatment of the varicosities, which had begun with hopes of giving some relief, were discontinued. The patient also has polyps of the rectum and bilateral hydroceles. The left leg is entirely normal. The present edema of the right leg began five years ago. Urine examination is negative. The heart condition is not remarkable. He has had extrasystoles for three years. The blood pressure is 120 systolic, 80 diastolic. He has been put on 1 cat unit of digitalis daily for several weeks, without any improvement. Could you advise me as to cause and treatment? Would ligation of the saphenous vein help? Please omit name.

M.D., California.

ANSWER:—There has probably been a phlebitis involving the deeper veins with consequent thrombosis and obliteration. Possible intrapelvic obstruction must be ruled out. The condition is best left alone as far as surgery or injections are concerned. A well fitting elastic stocking could be tried, but it must not interfere too much with the return circulation through the superficial veins. There is no reason for the digitalis and it is best omitted. It is a mechanical condition which can be alleviated but not permanently remedied and does not call for the administration of any diuretic drug. Digitalis is not a diuretic per se.

ONION TASTE TO MILK

To the Editor:—I am interested in the experiments related in *THE JOURNAL*, January 9, on page 136, "That Garlic Odor." In the last paragraph it is stated that "30 Gm. of raw domestic onion can be swallowed in capsules and no odor detected on the breath." How can the onion taste to milk be explained when the cows eat onion grass? I know for a fact that the students of a college in Virginia could not drink the milk served because of a strong onion taste.

LYMAN WEEKS CROSSMAN, M.D., New York.

ANSWER:—The observation that milk from cows eating onion grass has an onion taste is undoubtedly correct. The probable explanation is that a sufficient amount of volatile oil from the ingested grass has reached the blood to allow its excretion by the mammary gland. Many substances are excreted into the milk, including numerous drugs, salts, anesthetics, metals, volatile oils and lipid-soluble substances. Cows fed large amounts of cod liver oil may produce milk that tastes and smells of the fish oil. It is common knowledge that fat-soluble pigments and carotenoids from plants enter the milk and give the yellow color to butter. Every dairy farmer is aware that the diet of the cows affects the color, odor and taste of the milk. Human milk likewise may contain the odor of alliacious oils present in the mother's food. Whether or not it does so depends mainly on the amount of substance ingested.

Again, the cow consumes large quantities of these greens. Also, onions vary considerably in their content of allyl-propyl disulfide, and the wild vegetable may contain a higher percentage of volatile oil than the domesticated form. As this oil

is lipid soluble, the higher fat content of cow's milk as compared to human milk may be an additional factor in the presence of onion odors.

The experiments referred to in the inquiry were merely quoted by Goodman and Bearg in their communication to THE JOURNAL. If it should be found to be generally true that 30 Gm. of raw domestic onion can be swallowed in capsules without affecting the odor of the breath, this might mean only that this amount is insufficient.

ANGINAL PAIN IN HEART DISEASE

To the Editor:—I would appreciate some information regarding certain cases showing symptoms of angina pectoris. There is perhaps an initial attack of mild anginal pain relieved by rest in bed from which the patient is free for several months, but with increasing dyspnea on effort until there is a recurrence, at first slight and transient and coming on several hours apart gradually increasing in severity, length and frequency until a doctor is called. When the patient is first seen the attacks will last about five minutes and be that far apart, the pulse but little accelerated, the heart tones normal in character and location. Two ampules of amyl nitrite will give no relief and if $\frac{1}{100}$ grain (0.0065 Gm.) of glyceryl trinitrate is given by mouth the patient may be made uncomfortable, restless and apprehensive. The pulse may jump to 120. There is not the classic ghastly pallor, the eyes staring with terror and anxiety, the bodily rigidity. The patient may bend forward in bed, the arms slowly writhing with tense muscles, the face suffused, the eyes tightly closed with a frown and the patient uttering a low moan. The pain is viselike beneath the left border of the sternum, radiates to the left shoulder and down the arm to the hand, and will take perhaps more than a grain (0.065 Gm.) of morphine to control, in one who is in no way addicted to the use of opiates. Urinalysis will show a marked transient glycosuria. With absolute rest in bed there will be no repetition of the attack. What has probably happened and what is the prognosis?

H. A. HASKELL, M.D., Windsor, Calif.

ANSWER.—The question is not quite clear. If the symptoms mentioned occurred in chronological order in a patient who was under observation, a fairly reasonable explanation may be offered. With this assumption it is probable that the patient suffered for a time with anginal pain, the angina of effort. It is assumed that this type of pain is due to a general reduction of the coronary circulation due to anatomic changes in the coronary vessels, and the discomfort is usually quite amenable to rest in bed and to reduced activity. The increasing dyspnea on effort would indicate that the myocardial failure due to the impaired coronary circulation was constantly progressing. Then, after several months of this, the patient had an acute coronary occlusion. The relatively slow onset of the occlusive symptoms may be explained by the assumption of a slowly spreading thrombosis, so that several hours may be consumed in reaching the height of myocardial infarction. The pain of coronary occlusion is not relieved by vasodilators and the inhalation of amyl nitrite plus glyceryl trinitrate beneath the tongue would be likely to add to the discomfort in such a situation. Repetition of this attack would not be likely to occur unless there was additional thrombosis. Indeed, previously existing anginal pain has been known to disappear following a frank coronary occlusion.

The prognosis is distinctly unfavorable in general but must be based on the individual case.

ALCOHOL IN URINE

To the Editor:—If the urine in the bladder contains 0.18 per cent alcohol at necropsy, would that be presumptive of acute alcoholic intoxication? Can you refer me to any authority on the subject of alcoholic contents of viscera and body fluids at postmortem?

HOWARD K. SHROM, M.D., Detroit.

ANSWER.—Assuming that the analysis indicates 0.18 per cent by weight in the urine and that the individual did not die within thirty minutes after beginning drinking, it is apparent that the individual was but moderately under the influence of alcohol at the time of death. This percentage is usually associated with definite psychologic inferiority and with but slight impairment of muscular coordination. Furthermore, this amount of alcohol could not be considered as a cause of death, since death from alcohol rarely occurs until body fluids contain more than 0.6 per cent. If we consider the more remote possibility of death occurring within thirty minutes after starting drinking, there would have been insufficient time for the distribution of alcohol, and the urine would have contained much less than the blood. For this reason, examination of the blood is an important adjunct when the time factor is unknown.

About one hour after drinking, alcohol becomes fairly uniformly distributed in the water of the body and it is evident that a man weighing 150 pounds (68 Kg.) having 0.18 per cent in his urine must have consumed at least $150 \times \frac{2}{3}$ (fraction of

water in body) $\times 0.18$ per cent = 0.18 (pounds of alcohol in body); = 2.9 (ounces of alcohol by weight; = 3.6 (ounces of alcohol by volume, alcohol having a specific gravity of 0.8).

The distribution of alcohol in various tissues of the body has been discussed by:

- Nieloux, M.: *Compt. rend. Soc. de biol.* 51: 980, 1899; 107: 997, 1931.
Southgate, H. W., and Carter, G.: *Brit. M. J.* 1: 463 (March 13) 1926.
Bogen, Emil: *California & West. Med.* 26: 778 (June) 1927.
McNally, W. D., and Embree, H. C.: Alcohol in the Human Body, *Arch. Path.* 5: 607 (April) 1928.
Mellanby, Edward: *Brit. J. Ineb.* 17: 157, 1920.
Harger, R. N.: *J. Lab. & Clin. Med.* 20: 746 (April) 1935.

An excellent collection of papers on this subject can be obtained from the Package Library of the American Medical Association.

INTERMITTENT CLAUDICATION

To the Editor:—What can one do in the treatment of intermittent claudication? A man, aged 78, began to find about four years ago that on walking one or two blocks he experienced an agonizing ache in or about the right hip joint, which he at first feared might be due to emburcation of the head of the bone or the acetabulum but learned in the course of the succeeding three or four years that more than the joint surfaces was involved. At length the pain extended to surrounding structures and did not always originate in the joint itself but up above and behind the joint, affecting the lower portion of the gluteus maximus muscle and in time (two or more years) began to be accompanied by numbness, which extended to and involved the outer three fourths of the foot on that side. The inferior half of the gluteus maximus would become quite numb at these times. Sitting down for ten or twelve minutes would see it depart, leaving no trace, to return again under similar conditions. Latterly it has begun to affect the left side also, and for about four nights it has invaded the left leg and foot some time after he retires, at which times the numbness appears to be accompanied by an agonizing ache, which may be in one of several situations but is usually in the front part of the leg about 4 inches above the ankle joint. Walking, however, causes the aching and numbness to reappear in the calves and in the thighs—it does not appear to be so much localized as it was earlier. After ten or twelve minutes' rest it disappears entirely until walking is indulged in again, or until he retires to bed. After a round of this kind, if he rises and walks about for ten or twelve minutes he can lie down and sleep soundly. He has a fair appetite and in other respects feels as well as usual. A while back he had some trouble (annoyance) with extrasystoles, but these disappeared on taking pepsin and hydrochloric acid after meals for a week or two. He has no shortness of breath on exercise; he can lift as heavy a load as ever. He has to rise once, about 4 a. m., to urinate. In my library (of about 500 volumes) only one writer gives anything that one could call a description, but only indefinite suggestions for treatment. This is Nascher, *Geriatrics*. Is there a treatment? Is the disease amenable to any treatment? What is the pathology and the cause? I omitted to state that in the limb in which the manifestations appear there is a lowered temperature. MILLARD F. CUPP, M.D., Clarksburg, Ind.

ANSWER.—Intermittent claudication is a symptom of arterial insufficiency which is produced by disease of the arteries to the extremities, either inflammatory in nature, that is, thromboangiitis obliterans, or degenerative in nature, that is, arteriosclerosis obliterans. It is characteristically produced by exercise and relieved by rest. It does not occur while the patient is at rest, nor does it occur while the patient is standing. It is quite probable, therefore, that the patient whose symptoms are described does not have intermittent claudication. This would be a certainty if pulsations in the arteries to the extremities were found to be normal and if there were no abnormal pallor of the feet on elevation of them or abnormal rubor when they were dependent, as these signs are manifestations of occlusive arterial disease. Since the patient has pain while at rest and numbness of a portion of the foot indicative of nerve involvement, it appears that the process responsible for the symptoms is more probably in the structures in the spine, pelvis, hip joint or upper part of the femur. These areas should be examined carefully and roentgenograms made. In a person of the age of the patient whose symptoms are described, one should suspect metastatic involvement of the bone.

The treatment of intermittent claudication is not entirely satisfactory, but the distance which patients with intermittent claudication can walk is ordinarily increased considerably by the administration of tissue extract (Barker, N. W.; Brown, G. E., and Roth, Grace M.: *Am. J. M. Sc.* 189: 36 [Jan.] 1935). If the patient has an occlusive arterial disease, it is advisable to attempt to increase the circulation to the extremity with the method described by Brown (*Surg., Gynec. & Obst.* 58: 297 [Feb. 15] 1934) with the exception that sympathectomy and the intravenous injection of typhoid vaccine are not ordinarily advisable in older persons whose occlusive lesion is due to arteriosclerosis. Intermittent pressure and suction may be of value (Allen, E. V., and Brown, G. E.: *Intermittent Pressure and Suction*, THE JOURNAL, Dec. 21, 1935, p. 2029).

ALLERGIC DERMATITIS

To the Editor:—A boy in apparently good health has a widespread papulosquamous eczema. The areas involved are the forehead, angles of the jaw, anterior part of the chest, flexor surface of the forearms, the creases at the knee and elbow, and the outer portion of the legs. On the leg, where the child rubs them on the bed and chairs, the lesions are moist and weeping; otherwise the lesions are dry, slightly elevated and scaly. The child was premature (thirty-four weeks) and weighed 4 pounds 12 ounces (2,155 Gm.) at birth. For two weeks the child was fed on breast milk and, as the supply failed, was put on evaporated milk and karo, with small doses of thyroid, halibut liver oil and viosterol and orange juice. He was given cereal (pablum) at 4 months, vegetables (Heinz) at 5 months and egg yolk at 6 months. At present he is 9 months old, weighs 22½ pounds (10 Kg.), is 29 inches (74 cm.) in height, has six teeth, sits up alone, and in general shows a normal mental and physical development. The present diet is 24 ounces of whole milk, 8 ounces of water and 3 tablespoonfuls of karo, cereal (1 tablespoonful of pablum), vegetables (3 teaspoonfuls of strained carrot and 3 teaspoonfuls of some strained green vegetable), fruit (3 teaspoonfuls of strained fruit, as prune or apricot or apple). He also gets the juice of one orange and ten drops of halibut liver oil with viosterol. When the child came home from the hospital he had several small areas of rough skin on the forehead and legs. Since then the condition has grown steadily worse. Every article of diet has been omitted for at least ten days, with no change except that I noted that with egg yolk there was a definite aggravation and it has been since omitted. The soap has been changed, as also the brand of halibut liver oil and viosterol, and the type of oil used on the skin. Whole milk has been substituted for the evaporated milk. All aluminum cooking pans have been eliminated. There are no other allergic symptoms in the child. He has had no head colds. After vaccination and diphtheria immunization there was no reaction. The child's great grandfather (paternal) had hay fever, the maternal grandfather had asthma, and a great aunt is sensitive to strawberries. Locally I have used calamine lotion, boric acid ointment, graphite ointment and rosewater ointment. As this is my own son, I am of course certain of all the facts stated as to diet and history.

M.D., Rhode Island.

ANSWER.—This is probably atopic dermatitis; that is, dermatitis caused by sensitization to food or possibly to environmental allergens. It would be well to do scratch tests with all the foods the baby is eating and with the environmental allergens, such as silk, kapok and feathers. If the scratch test to milk is negative, an intracutaneous test with milk should be done, as this is often positive when the scratch test is negative. The diet should then be regulated in accordance with the skin tests, and feathers and dust should be removed so far as possible from the environment, no matter what the skin tests show. If skin tests are not done, the following diet, planned in accordance with the food sensitivities that most of these babies show, may do some good: one of the proprietary milk free foods (cemac, sobee and the like); oatmeal or cornmeal; string beans, carrots and bananas; cevitamic acid tablets, and halibut liver oil with viosterol.

It is difficult to prescribe local treatment without seeing the child, but the following prescriptions usually work well.

For the face:

Crude coal tar.....	8 Gm.
Zinc oxide	16 Gm.
Starch	32 Gm.
Petrolatum	4 ounces (125 Gm.)

For the arms and legs:

Salicylic acid	2.6 Gm.
Mercurochrome crystals	1.3 Gm.
Aquae, q. s.	
Hydrous wool fat.....	
Petrolatum	2 ounces (62 Gm.)

LACTIC ACID MILK AND INTESTINAL
FERMENTATION

To the Editor:—What is the difference between lactic acid milk, acidophilus milk, sour milk and buttermilk (sweet and sour)? Can pasteurized milk sour, or does it putrefy? When one wishes to change the intestinal flora of a patient with intestinal fermentation accompanied by discomfort and distention of the abdomen, and lactic acid milk cannot be obtained for treatment, will buttermilk or sour milk serve the same purpose? Will milk acidified with lactic acid change the flora as well as a culture of the lactic acid bacillus?

M.D., Pennsylvania.

ANSWER.—Lactic acid milk is cow's milk (fresh or pasteurized) to which lactic acid has been added in the proportion of from 3 to 3.5 cc. to 100 cc. of milk. Acidophilus milk is sterilized milk which has been fermented by a pure culture of *Bacillus acidophilus*. Buttermilk, with varying degrees of acidity, is a product of indefinite composition produced by the "souring" action of *Streptococcus lactis* and *Bacillus bulgaricus*. Lactic acid milk is so easily prepared, it should be available for use as desired in treating the condition described. Change of the intestinal flora to a predominantly aciduric type requires the ingestion of large amounts of living *Bacillus acidophilus* and the feeding of at least 100 Gm. of lactose or dextrin daily. A preparation of acidophilus milk supplemented with lactose or

dextrin is the most effective means of producing this transformation of the intestinal flora.

As the term intestinal fermentation is vague, a direct answer to the question of treatment cannot be given. Buttermilk or sour milk might cause either an increase or a decrease of intestinal gas. Transformation of the flora by these agents is uncertain.

Further information is given in the article on "Lactic Acid-Producing Organisms and Preparations" in *New and Non-official Remedies, 1937*, page 274.

DUODENAL ULCER AFTER BURNS

To the Editor:—I treated a man seven years ago for an extensive burn over the chest and abdomen. The damaged area must have involved at least one third of the surface of the body. Since his accident he has had quite a bit of digestive trouble, which is probably a duodenal ulcer. About a week ago he had a hemorrhage from his stomach and duodenum. Can you give me an estimate of the percentage of burn cases in which duodenal complications develop? The patient may carry his case to court for disability and I should like to have some authoritative information with regard to the case.

M.D., Georgia.

ANSWER.—There is considerable difference of opinion regarding the frequency with which burns are complicated by duodenal ulceration. One author states that of all fatal burns 6.2 per cent are complicated by ulcer formation. In one series of sixty-eight patients, two had duodenal ulcers. In another series of 248 burned persons, the complication occurred only once. Because the development of the ulcer during the course of the burn is not accompanied by the symptoms so characteristic of the lesion as it is usually observed, its presence in the acute stages is often not suspected. Hemorrhage is usually the first symptom of duodenal ulceration occurring during the acute stage of a burn. Acute perforation may be the first evidence of its presence. While duodenal ulceration is not a common complication in burns, it occurs with sufficient frequency to justify the conclusion that there is a definite relationship between the two conditions. There is some experimental evidence to support this clinical observation.

DIAGNOSIS OF SYPHILIS

To the Editor:—I have under my care a man, aged 39, weighing 172 pounds (78 Kg.), who came to me Feb. 28, 1936, with a lesion on the left side of the corona, which, the laboratory reported, showed large numbers of *Spirochaeta pallida*. The man had infected his wife before he came under my observation and I have had the two under my care since then, both taking active treatment. I have used the continuous plan of treatment as recommended by the U. S. Public Health Service. In all the husband has had twenty-two injections of 0.6 Gm. of nearsphenamine and twenty-six injections of a bismuth compound in the gluteal region. By March 16 his original lesion was entirely healed. October 17 he had an illicit intercourse and on November 24 another one with the same partner. During these dates he was taking intramuscular injections of the bismuth compound. November 25 he noticed a slight red spot on the right side of the corona and by November 28 this was an open lesion. December 5 I sent him to the laboratory again and the laboratory reported spirochetes in this lesion. Since the patient has had no intermission in treatment and since the second lesion does not occur in the same lymphatic drainage area as the first lesion, I am at a loss to account for it. The question that I hope you can help me to decide is "Is this a recurrence on the opposite side of the corona which I am unable to find any account of in the textbooks, or must I regard it as a new infection which has occurred in spite of his continuous treatment?" I am unable to obtain an examination of this partner who might have infected him. His wife has pursued a perfectly normal syphilitic course. Please omit name.

M.D., Kansas.

ANSWER.—The data furnished unfortunately are not sufficient to allow an unequivocal answer. No mention is made as to whether the Wassermann reaction was positive before treatment or what happened to it after treatment was started.

True there is a possibility that this patient is suffering from a reinfection. However, it is well known that infectious monorelapses are prone to occur on the genitalia, and while this is on a different area and in an area that has a different supply of draining lymphatics than the first lesion, there is no reason why this could not be a monorelapse. The fact that we have no information with regard to the Wassermann reactions naturally makes it difficult for us to more than simply mention the possibilities that this is either a monorelapse or a reinfection.

True reinfections in syphilis are exceedingly rare, and under the circumstances we would be inclined to put this down as an acute infectious monorelapse and would recommend that the correspondent start him in on treatment the same as one would a fresh case of syphilis, using the continuous therapy in courses of nearsphenamine followed by courses of a bismuth compound.

Moreover, no mention is made of lumbar puncture and the condition found in the spinal fluid. This, of course, should be done at once. It might assist a great deal in revealing whether

the patient does not already have an involvement of the central nervous system, which would, of course, immediately rule out the possibility of reinfection.

TULAREMIA OR SPOROTRICHOSIS?

To the Editor:—A veterinarian, aged 57, employed by the state of California and working on meat inspection, consulted me Dec. 8, 1936, for multiple nodular enlargement, apparently lying along the lymph channels of the left arm. He had consulted me Jan. 29, 1936, for slight laceration of the second finger of the left hand. This injury showed definite evidence of infection at that time with lymphadenitis noted in the region of the left elbow. Supportive treatment was given and the wound healed without further complication. The present history of the glandular enlargement is not definitely known but the patient first noted these nodules about four months previous to December 8. The nodules are slightly flattened, soft in texture, and freely movable under the skin. There is no discoloration of the skin over these swellings. There is no tenderness and no evidence of fluctuation. They are about half the size of a butter bean, some being smaller. They extend from the middle of the palm of the hand to the axilla. One or two are noticed in the axillary space. December 8 a blood Wassermann test was reported negative. A complete blood count was essentially negative. A biopsy was suggested in this case, but owing to the possibility of a fungal infection it was considered that it might cause a breaking down of the patient's resistance to the infection and produce a sloughing ulcer. The patient's health has been very good and there has been no evidence of a break in the skin of recent origin. Could you suggest any diagnostic measure other than a biopsy in arriving at a diagnosis?

H. R. McMEIKIN, M.D., Lynwood, Calif.

ANSWER:—If the veterinarian had direct contact with wild rabbits, squirrels, sheep, woodchucks, opossums, muskrats, coyotes or certain game birds just prior to the onset of the nodular lymphangitis and axillary adenopathy, the possibility of tularemia should be investigated. The agglutination test for tularemia remains positive indefinitely, although the titer is usually lower (from 1:40 to 1:160) after the lapse of several months from the onset of the disease. A second possibility is sporotrichosis, an infectious, parasitic disease caused by a fungus (*Sporotrichum schenckii*). This disease is characterized by multiple painless circumscribed nodules and abscesses in the skin and subcutaneous tissues, particularly along the lymphatic channels of the extremities. It occurs also in the horse and other animals. Scrapings may be examined directly for the presence of mycelia and cultures made on appropriate mediums. Internal and external iodine therapy appears to be the treatment of choice for sporotrichosis.

Other possibilities are tuberculosis, syphilis and neoplasm. If thorough clinical and pathologic examinations do not provide adequate evidence, biopsy should probably be done. Cultural studies and animal inoculations should be carried out in addition to the microscopic studies of such biopsy material.

DIET LIST FOR ULCER

To the Editor:—Please give me a complete diet list suitable for duodenal ulcer in the interval between attacks and especially after the six month and one year periods. Also please mention lists of foods not allowed. The standard textbooks stress the diet during and immediately after attacks but indicate in only a general way the after-management. It has been my observation that the symptom-free patient will sooner or later discard all dietetic regulation unless given a comprehensive and varied list. Please omit name.

M.D., Pennsylvania.

ANSWER:—A patient disabled with a duodenal ulcer, in a quiescent period, should be allowed the following diet:

Meats: Lamb chop, chicken or lamb.
Vegetables: All kinds, thoroughly cooked except shredded lettuce and raw tomato.
Fruits: All kinds, either raw or cooked, except berries with seeds.
Eggs: In any way except fried.
Fish: Fresh water fish, broiled or boiled.
Soups: Cream soups of all kinds, but no meat soups or meat to be used in the soups.
Cereals: Well cooked cereals or some of the more common, easily digestible dry cereals.
Bread: Must not be too fresh—preferably toasted.
Beverages: Milk, cream, buttermilk or cocoa.
Butter: A moderate amount.
Desserts: Simple desserts such as gelatin, tapioca, ice cream, ices, sponge cake or plain cookies.
Also olives, soda crackers, salted or unsalted, cottage cheese or cream cheese.

The patient is to avoid seasoning of all kinds, pepper and condiments especially, coffee, tea, alcohol in all forms, tobacco, and fried and greasy foods.

Six months after the beginning of treatment, the diet can be as given except that meats should be restricted to an occasional lamb chop or an occasional serving of chicken.

MUSCAE VOLITANTES

To the Editor:—Please give information and references on the condition known as muscae volitantes. A white man, aged 38, complains of black spots before his eyes. The patient's physical condition is good except for four dead teeth; x-ray examination does not show abscessed roots. The patient's weight is 150 pounds (68 Kg.) and his height 5 feet 10 inches (178 cm.). The blood pressure is normal. The present complaint began one and one-half years ago following an attack of influenza of the nervous type. Black spots appear on exertion, in extreme cold weather, at the beginning of a meal and during straining at stool. The bowels are somewhat constipated. The patient had an attack of catarrhal jaundice in 1925. Is this a physiologic disturbance or is it due primarily to constipation? Please advise treatment. Please omit name.

M.D., Pennsylvania.

ANSWER:—Without a statement as to the condition of the vitreous, it is next to impossible to comment at length on the case in question. This may be an instance of simple thickening of the vitreous fibers in which the shadow caused by the crossing of the fibers becomes apparent only when the retinal vessels are engorged. On the other hand, it may be a case of true fibrin or blood clots in the vitreous due to some minor pathologic process. Again, it may be visibility of the blood cells within the retinal capillaries. See Helmholtz's *Physiological Optics*, third edition, translated in 1924, volume 1, page 204. First the patient should be examined by an ophthalmologist.

MINIMUM VISION REQUIREMENTS FOR BUS DRIVERS

To the Editor:—What do you consider should be the minimum vision requirements (Snelling's test type) of drivers of passenger busses on city streets with or without glasses? You need not go to the trouble of discussing night-blindness, diminished visual field or the general health or mentality.

M.D., Alabama.

ANSWER:—There are four minimum vision requirements of drivers of passenger busses which should be complied with:

1. Central vision should be at least 20/20 in one eye and at least 20/40 in the other, with or without glasses.
2. The driver should have normal color vision.
3. The driver should have normal field vision.
4. The driver should have normal stereoscopic vision (most important in judging distance).

TUBERCULOSIS IN DOGS

To the Editor:—In *Queries and Minor Notes* in THE JOURNAL, February 6, page 495, in a discussion of tuberculosis as it occurs in dogs and cats, the statement is made that tuberculosis was observed in approximately 1 per cent of the autopsies on 1,548 dogs. We have conducted autopsies at the North Shore Animal Hospital for sixteen years, and we are still looking for tuberculosis in the dog or the cat. Our experience is analogous to that of a number of other veterinary practitioners in America; consequently, I should like to know where these 1,548 autopsies were held. I do not doubt the existence of tuberculosis in dogs and cats, but observation of the disease in approximately 1 per cent of instances is startling. Even in Holland, according to Jakob (*Innere Krankheiten des Hundes*), in the period from 1906 to 1912 only eleven cases of tuberculosis were found in 568 dogs examined. This is 1.9 per cent.

D.V.S., Illinois.

ANSWER:—The 1,548 necropsies on dogs were reported from the Laboratory of Veterinary Pathology of the University of Pennsylvania by W. J. Crocker. The title of his article and the reference to his paper are as follows: *Three Thousand Autopsies, Corn. Vet.* 9:140, 1919.

IMMUNIZATION WITH SCARLET FEVER ANTITOXIN

To the Editor:—What percentage of protection is obtained from administering the scarlet fever antitoxin to contacts, provided it is given during the early part of the incubation period? Please omit name.

M.D., Texas.

ANSWER:—A prophylactic dose of scarlet fever antitoxin administered to the susceptible infected contacts before any symptoms of the disease, such as sore throat or fever, have developed should prevent the development of scarlet fever on account of the existing infection, although, after two weeks, scarlet fever may develop from a subsequent exposure through contact with a case of scarlet fever or an immune carrier. The protection from a prophylactic dose of antitoxin is transient, lasting about two weeks, at the end of which time the serum is largely eliminated from the body.

If the infected person has developed symptoms such as sore throat or fever, a therapeutic dose of antitoxin should be given. Reports have been made on several institutions in which scarlet fever was successfully controlled by this procedure.

But before the quarantine was abolished between the infected and the noninfected groups the susceptible infected persons who had received the antitoxin to prevent the immediate development of scarlet fever were actively immunized with scarlet fever toxin in order to protect against subsequent infection through contact with carriers known to be living in the institutions.

DIPHTHERIA STATISTICS

To the Editor:—I am wondering whether there has been any record made by the different biologic laboratories as to whether or not there has been any reduction in the sales of diphtheria antitoxin since the discovery of and use of the various preventive methods for diphtheria. If there is, it would assist me and others in urging the use of the diphtheria prevention.

M.D., Texas.

ANSWER.—Information as to the amounts of diphtheria antitoxin distributed by the different biologic laboratories before and after introduction of the various diphtheria prophylactics is not available. Even if available, it might be of questionable significance, since it is possible that more antitoxin is being used in the treatment of the individual case and that more cases are being brought into treatment. Apparently much more significant is the incidence and mortality of diphtheria in cities where preventive inoculation has been used extensively. Among reports bearing on this point is an article entitled "Diphtheria Mortality in Large Cities of the United States in 1935" (*THE JOURNAL*, June 13, 1936, p. 2060), in the last paragraph of which it is stated that "the striking feature in the 1935 diphtheria record appears to be that wherever preventive inoculation against diphtheria is practiced consistently diphtheria deaths well-nigh cease to occur, and in some communities diphtheria morbidity is also reduced to an insignificant figure."

SENSE OF SMELL IN CHRONIC SINUSITIS

To the Editor:—During the World War I contracted sinus infections involving the frontal and maxillary groups. Six weeks following this acute infection I noticed that my sense of smell began to be less acute and finally, over a period of time, the sense of smell completely disappeared. The sinuses drained for years (at intervals) but now they have been inactive for several years and within the last year I have noticed that I am able to detect some odors, very faintly, of course. At times, however, the odors are quite pronounced. I have no nasal deformities and am in excellent health otherwise. The return of this faint sensation of smell is encouraging to me and I would certainly appreciate suggestions from you as to what sort of treatment I might be able to carry out myself in the way of some graduated stimulation to the nerve endings to assist in restoring this sensation. Please omit name.

M.D., New Hampshire.

ANSWER.—In the presence of chronic sinusitis or at least frequent acute recurrences, the sense of smell is apt to disappear or become markedly blunted because, first of all, the secretions by their presence mechanically block the nares and do not permit odors to reach the olfactory area. It may further be that the general inflammation of the lining membrane dulls the physiologic receptivity of the olfactory fibers. The return of the sensation of smell is, of course, encouraging. There are no exercises or types of stimulation, excepting those which are physiologic, that can bring back the sense of smell. The only hope there is of complete restoration is to remove those hypertrophies, polyps or residual infection, which, done well, allows odors to be brought in contact with the schneiderian area.

DIAPHRAGMATIC HERNIA AFTER LABOR

To the Editor:—My wife was recently delivered of her first baby by forceps delivery after twenty-seven and one-half hours of labor. She had never complained of any symptoms referable to the gastric region. During labor she twice vomited "coffee brown" material, which was found to be blood. Shortly after her confinement, roentgenograms were taken of the stomach. The upper fourth of the stomach was found herniated into the thorax through the esophageal hiatus. Since her labor she has had only occasional heartburn, no other symptoms, no vomiting, and the stools are normal. Please omit name.

M.D., Pennsylvania.

ANSWER.—The condition described is a diaphragmatic hernia due to unusual relaxation of the esophageal hiatus. The prognosis is excellent and nothing need be done about the condition unless disturbing symptoms arise. These symptoms may consist of severe pain often after eating, or sharp pain in the chest which resembles that of coronary disease. Not infrequently a diagnosis of heart disease is made on the basis of the character of this pain. Another symptom to which attention should be paid is severe and frequent attacks of heartburn. More important still is hematemesis, which should lead to a careful study for the detection of gastric ulcer. The latter condition is not infrequently associated with a diaphragmatic hernia.

"DOSAGE OF BROWN MIXTURE"

To the Editor:—Permit me to call in question the answer on "Dosage of Brown Mixture for Cough" (*THE JOURNAL*, Dec. 26, 1936, p. 2153). In the first place the unit of measure for antimony and potassium tartrate is grams, not cubic centimeters as recorded in the formula. In the second place, referring to your last sentence, which seems superfluous, what medicine ever does immunize against colds? In the third place, if a 2-year old, for example, received about 1 drachm of the mixture (or about 14/1,000 grain of antimony and potassium tartrate and between 7 and 10 minims of paregoric) every two hours, would he be getting from these two main ingredients of this old time shotgun mixture much more than mild sedation and perhaps some expectorant effect? Certainly if he does not exhibit nausea at the outset he ought to be able to handle a half teaspoonful every two hours without emesis. From one to two drops of brown mixture per year of age would seem pretty homeopathic. Undoubtedly this combination is far from ideal for colds, but if it is wanted in the West Indies, why not give it a chance?

M.D., New York.

ANSWER.—The calculation for antimony and potassium tartrate is correct; there are 7 minims of paregoric in the mixture if the teaspoonful equals 4 cc.

TRICHLORETHYLENE AS CAUSE OF DERMATITIS

To the Editor:—A tailor has developed a severe dermatitis of the hands, which I have traced to use of a cleaning fluid containing trichlorethylene. This fluid is used in cleaning clothes. What can be done to prevent this occupational dermatitis (besides wearing rubber gloves)?

M.D., New York.

ANSWER.—Trichlorethylene, a cleaning fluid, which is sometimes used in the place of carbon tetrachloride, burns the skin of the hands. Avoidance of contact with this chemical in cases exhibiting sensitivity is the only effective preventive therapy. Mildly involved patients can sometimes continue work with protection of the parts by long sleeves and gloves and a protective ointment. The patient may try using some other cleansing fluid, such as carbon tetrachloride, to which he may not be sensitive. Patch testing with the new fluid to be used is advised to determine whether sensitivity exists to it. There is no successful method of desensitization to chemical irritants.

USE OF TETANUS ANTITOXIN

To the Editor:—It is an almost universal practice to administer tetanus antitoxin as soon as possible after an injury. Since the purpose of the antitoxin is not to immunize but simply to neutralize toxin, when formed, would it not be more logical, as well as more effective, to withhold it for several days? Please omit name.

M.D., New Jersey.

ANSWER.—The object in giving antitoxin promptly after injury is to provide the means of neutralizing the toxin as soon as it is produced. This neutralizing effect may be possible for some days, because free antitoxin is eliminated gradually. And immediate neutralization of the toxin undoubtedly favors the destruction by phagocytosis and other means of the toxigenic tetanus bacilli lodged in the injured tissue. Delay in giving antitoxin may provide opportunity for the toxin to form the irreversible union with nerve cells that results in tetanus.

LYMPHOGRANULOMA OF STOMACH

To the Editor:—In *THE JOURNAL*, Dec. 19, 1936, on page 2025 at the end of the second paragraph of "Leukemia of the Stomach Producing Gastric Mucosa," by Rigler, the author states that "the roentgen examination led to a diagnosis of carcinoma rather than of lymphogranuloma." Did he possibly mean lymphogranuloma inguinale? Perhaps what he really had in mind was lymphogranulomatosis.

MARK STERN, Los Angeles.

ANSWER.—Lymphogranuloma—meaning Hodgkin's disease localized to one area—was correctly used in the sentence referred to in the inquiry. Lymphogranulomatosis refers to the generalized form of Hodgkin's disease and is often used as a synonym for multiple lymphoma. There is, of course, no relationship whatever to lymphogranuloma inguinale.

GONOCOCCUS CARRIERS

To the Editor:—Are there any cases on record of persons who have never had clinical symptoms and who have good reproductive ability but who harbor gonococci in the genito-urinary tract?

M.D., Ohio.

ANSWER.—In the adult female without previous clinical diagnosis of gonorrhea, a gonococcus carrier state frequently occurs without clinical symptoms. The carrier state is more likely to occur in a person who has formerly had gonorrhea, and a later new infection often causes no marked subjective symptoms. In the male, however, it seems to be extremely rare for gonorrhea to escape detection by the patient.

Medical Examinations and Licensure

COMING EXAMINATIONS STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, Sept. 13. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: Phoenix, July 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Eclectic*. Little Rock, Dec. 21. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Medical (Homeopathic)*. Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular)*. Hartford, July 13-14. *Endorsement*. Hartford, July 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29. *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhlman, 203 District Bldg., Washington.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science*. Des Moines, July 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MAINE: Augusta, July 6-7. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, July 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MONTANA: Helena, Oct. 5-6. Sec., Dr. S. A. Cooney, 205 Power Block, Helena.

NEVADA: *Reciprocity*. Carson City, August 2. Sec., Dr. John E. Worden, Carson City.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. Le Grand Ward, Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OREGON: *Basic Science*. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, July 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Rapid City, July 20-21. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

WASHINGTON: *Basic Science*. Seattle, July 8-9. *Medical*. Seattle, July 12-14. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Fairmont, July 12. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 19, page 2160.

Washington January Examination

Mr. Harry C. Huse, director, Department of Licenses, reports the written examination held by the State Board of Medical Examiners in Seattle, Jan. 11-13, 1937. The examination covered 7 subjects and included 70 questions. Eleven candidates were examined, all of whom passed. Twenty-nine physicians were licensed by reciprocity and 5 physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Illinois College of Medicine.....	(1915)		1
Harvard University Medical School.....	(1935)		2
University of Michigan Medical School.....	(1932)		1
University of Minnesota Medical School.....	(1937)*		1
University of Oregon Medical School.....	(1935, 2)		2
University of Pennsylvania School of Medicine.....	(1932), (1933)		2
Thüringische Landesuniversität Medizinische Fakultät.....	(1925)†		1
Jena	(1935)		1
Universität Bern Medizinische Fakultät.....			
School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine.....	(1935)		Colorado
University of Georgia School of Medicine.....	(1934)		Georgia
Rush Medical College.....	(1935)		Utah
State Univ. of Iowa College of Med.....	(1923), (1931), (1934)		Iowa

University of Louisville School of .....	.....	Kentucky
University of Minnesota Medical .....	.....	Minnesota
St. Louis College of Physicians and .....	.....	California
Washington University School of .....	.....	S. Dakota
University of Nebraska College of .....	.....
(1932), (1933) Nebraska, (1935) Oregon		
University of Oklahoma School of Medicine.....	(1935, 2)	Oklahoma
University of Oregon Medical School (1925), (1931), (1934), (1935, 2), (1936) Oregon		
Jefferson Medical College of Philadelphia.....	(1927)	California
University of Pennsylvania School of Medicine.....	(1931), (1932)	Penna.
Vanderbilt University School of Medicine.....	(1914)	Tennessee
University of Virginia Department of Medicine.....	(1931)	Virginia

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad. of
College of Medical Evangelists.....	(1934, 2)	N. B. M. Ex.
University of Minnesota Medical School.....	(1935)	N. B. M. Ex.
University of Oklahoma School of Medicine.....	(1935)	N. B. M. Ex.
University of Oregon Medical School.....	(1929)	N. B. M. Ex.

* License has not been issued.

† Verification of graduation in process.

Wyoming Reciprocity Report

Dr. G. M. Anderson, secretary, Wyoming State Board of Medical Examiners, reports 4 applicants licensed by reciprocity at the meeting held in Cheyenne, Feb. 8, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College.....	(1934), (1936)		Illinois
Western Reserve University School of Medicine.....	(1920)		Utah
Osteopath*			Iowa

* Licensed to practice osteopathy and surgery.

Book Notices

Abortion, Spontaneous and Induced: Medical and Social Aspects. By Frederick J. Taussig, M.D., F.A.C.S., Professor of Clinical Obstetrics and Clinical Gynecology, Washington University School of Medicine, St. Louis. Sponsored by the National Committee on Maternal Health, Inc. Cloth. Price, \$7.50. Pp. 536, with 146 illustrations. St. Louis: C. V. Mosby Company, 1936.

Abortion has become not only a great medical problem but also a great social problem. The author has estimated that 681,600 abortions occur annually in the United States. He endeavors to give here all the essential information available. In the historical chapter it is said that one of the oldest abortifacient recipes is still in existence although more than 4,600 years old. Abortion is mentioned in the literature of the ancient Hebrews, Egyptians, Greeks and Romans. Plato desired that his Republic should not consist of more than 5,040 citizens and to maintain a balance of this number he recommended the limitation of births. Aristotle is quoted as having said "If it should happen among married people that a woman who already had the number of prescribed children became pregnant, then before she felt life, the child should be driven from her." Chapters four and five review the anatomy and physiology of early pregnancy, and the pathology of abortion. These two short chapters are essential but they do not offer anything new; as this knowledge has been available for years. Chapters follow on the etiology of spontaneous abortion, prevention, symptoms and signs, and the diagnosis of abortion. The differential diagnosis between spontaneous and induced abortion is at times most important. The presence of fever early in the course of an abortion points to criminal intervention, while hemorrhage in such cases is likely to be more profuse and sudden. There is a tabulated summary of the points in the differential diagnosis between tubal abortion and uterine abortion. The author writes in the chapter on treatment that if the temperature is over 100 F. for more than twenty-four hours the case should be considered septic. Conservatism and a waiting policy in the treatment of uninfected cases is emphasized. Even in septic abortion the delay of a few days to determine the presence of any extension of the infection beyond the uterus is advised. A delay of five days in the evacuation of the uterus, it is said, is always almost possible and does not harm the patient. During this time many cases will terminate spontaneously and in the remainder there will be a better opportunity to build up resistance to the infection. If the temperature has remained normal for from three to five days, emptying of the uterus will expedite recovery and usually do no harm. In case of profuse

bleeding, immediate evacuation of the uterus by the gentlest method possible is indicated and the blood loss promptly replaced by blood transfusions. There is a chapter on operative technic, and then the author discusses the treatment of infection outside the uterus that has resulted from an abortion. The mainstay of treatment at present is rest, good nursing, good diet, blood transfusion, and above all fresh air and sunshine for the purpose of building up resistance to the infection. Perforation of the uterus occurs about once in about every 200 or 300 evacuations of the uterus, and every second or third perforation ends fatally. Of the instruments responsible for perforations, the curet is by far the most common offender. Other complications of abortion include inversion of the uterus, fatal hemorrhage, gangrene of the extremities, and prolonged retention of fetal parts.

The indications for therapeutic abortion have changed from time to time. In the latter part of the nineteenth century the indications were extended to include tuberculosis, heart disease, nephritis and certain forms of psychoses. Since the World War there has been an increased tendency to extend the indications to eugenic and to social and economic factors. The author believes that abortion may also be justified in patients showing asthenia, loss of weight and physical depression, especially if there are several children and the mother has heavy household duties and lacks resources to care properly for children already born. Following chapter twenty, on methods and technic of therapeutic abortion, the prevention of conception by surgical methods of sterilization—resection of the tubes, excision of the uterine cornua and tubal electrocoagulation—is considered. The so-called safe period, he says, is too unreliable to be given serious consideration as the sole method of restricting conception.

In the closing chapters, Dr. Taussig discusses the economic, theological, ethical and legal aspects of induced abortion. There is a chapter on the unusual situation that arose in the Soviet Union following the passage of a law in 1920 which legalized abortion in that country. The author believes that the increase in the number of abortions throughout the world has been due less to laxity of morals than to economic conditions. The underlying faults in our social structure that have led to the present alarming number of abortions can be grouped under the five headings of (1) economic distress, (2) occupational changes, (3) illegitimacy, (4) domestic relations and (5) fear of confinement.

Although, since the war, laws have been passed in some countries widening the medical indications for therapeutic abortion, an amazing situation still exists. The author says that leading obstetricians might almost without exception be sentenced to years of imprisonment if the law as it stands were strictly enforced. He knows of no other instance in which there has been such a universal disregard for a criminal law. There are brief discussions of the abortion laws in various countries. In an appendix are the statutes relating to the procuring of abortion in the states and territory of the United States in 1934. These are followed by an extensive bibliography and a well arranged index.

Die Tsetsefliegen: Ihre Erkennungsmerkmale, Lebensweise und Bekämpfung. Ein Leitfaden für die Praxis. Von Dr. F. Zumpt. Paper. Price, 9 marks. Pp. 149, with 136 illustrations. Jena: Gustav Fischer, 1936.

The tsetse flies are notorious as the insect vectors of the fatal nagana of domesticated mammals and of the equally dangerous sleeping sicknesses of man, both due to trypanosomes in the blood stream and fortunately both confined to tropical Africa by reason of their dependence for mammalian infection on the bite of the infected tsetse fly. Cattle are excluded from 200,000 square miles of Africa by the prevalence of these flies, and the deaths among men have been in the hundreds of thousands annually since the discovery of the cause of the disease in the blood of man by Dutton in 1902. These flies delay the civilization of tropical Africa for a distance of 600 miles on each side of the equator.

The author investigated these flies in the Cameroons in 1935 and this book bears the impress of his contact both with the scientific and practical problems that underlie all efforts to understand these diseases and every effort to control them.

A brief account is given of the anatomy, morphology, feeding and reproduction of the tsetse flies, all of which belong to the

genus *Glossina*, in which the author recognizes twenty species, to a critical account of which about half of the book is devoted. The remainder is concerned with the ecology of the flies in their pupal and winged stages and with the practical measures for control. The female produces from seven to ten larvae in a lifetime of three months, or one about every ten days. The larvae are deposited in damp situations, bore into the substrate several centimeters, pupate, and after from twenty-five to fifty-five days emerge as flies unless perchance destroyed by other parasitic flies whose larvae live in the tsetse pupa. About 50 per cent of pupae in the wild have been found to be destroyed by such parasites. Flies are most abundant during the dry season. The apparent fly density is tested in terms of the catch of flies per boy-hour. Males exceed the females by 4 to 1, and of 156 females only seven carried large pupae, indicating the retiring habit of the pregnant fly.

Practical measures suggested for restricting the ravages of the tsetse fly are: 1. Reducing the population of other carrier mammals that may also become infected. This fails because of forest conditions, migrations of game, and the fact that even very small mammals may serve as hosts. It is also futile and objectionable from the standpoint of conservation of wild life. 2. Cure of infected persons; but this is expensive, difficult to apply in early stages of the disease, and vitiated to a large degree by animal carriers. 3. Restriction of domestic animals and men in fly country to large clearings freed from brush and trees, which are less open to fly invasion. Avenues through the bush and rain forests are cleared for travel but to be effective they must be 1,200 yards in width. Poisoning trees with arsenicals and girdling to induce termite attack reduce the cost of clearing. Smoking out flies from vehicles in specially prepared huts reduces transfer of flies by traffic. These clearing methods require supervision by an ecologist familiar with the territory and species of fly. 4. Trapping flies in continuously operating traps designed to utilize their instincts to seek shelter in a dark background and in the shade, and building pupation chambers for trapping pupae. These have given excellent results in reducing fly density. 5. Biologic control by breeding parasites of the tsetse fly in other flies and releasing them. This method has been tried but awaits tests of its ultimate effects.

Rural Health Practice. By Harry S. Mustard, M.D., Associate Professor, Public Health Administration, School of Hygiene and Public Health, The Johns Hopkins University. Cloth. Price, \$4. Pp. 603, with 28 illustrations. New York: Commonwealth Fund; London: Oxford University Press, 1936.

While one may disagree with the author in his attitudes toward a number of fundamental concepts of public health work, it is a pleasure to commend the clear, orderly, comprehensive, understanding and wise presentation that he has made of the practical problems of the health officer in a rural community. The author, in this work as in others, believes in certain principles that do not meet with agreement among physicians in general, such as his approval, at least in part, of making the public health administration a division of a department of public welfare, his approval of the principle of "extra state" funds for local health work, and his rather sweeping condemnation of the principle of health districts, which in at least three states are giving satisfactory service. It is not likely that, even "ultimately," all of the three thousand odd counties of the United States should have full time individual health units; there are too many counties which are now and appear for some time destined to be nothing more than large expanses of landscape peopled by not much of anything. To postulate full time health service for such areas, except in theory, is to cry for the moon. Yet with all that, the book remains a genuine and much needed contribution to the library of the health officer in the small community, rural in character. It would make excellent reading for many a health officer even in the largest communities, since all of them deal with human beings, and human nature is not much different wherever it is found. The problems of the health officer are discussed in a frank, sympathetic manner. The author is well qualified by experience to speak on his subject. His advice is sensible and is given in sufficient detail so that it should constitute counsel of real value for the young administrator, filled with theoretical knowledge, but who has yet to experience his first community contacts, with all the perils of misunderstanding and mistakes that

they involve. The text is salted with enough pointed humor to make it easy and pleasant reading. The book is well documented and well indexed. There are a few good tables, notably some sample budgets that are within reason and represent practical expectations under existing conditions. The volume should be a useful reference book for those engaged in or about to engage in public health work, including the members of medical society committees now cooperating in advisory capacities to state health departments under social security legislation or otherwise.

A Handbook of Tropical Therapeutics. By R. N. Chopra, C.I.E., K.H.P., M.D., Professor of Pharmacology, Medical College, Calcutta. Cloth. Price, Rs. 25/-. Pp. 1,748. Calcutta: Art Press, 1936.

Therapy is taught in the medical schools of India from British and American textbooks based on experience in countries in which climatic and morbid conditions differ from those in the tropics. Medical experience in India indicates that therapy approved in temperate regions is not universally applicable in the tropics, is sometimes disappointing, and may even lead to untoward results. Hence this book, based on fifteen years of graduate teaching and of practice in the Carmichael Hospital for Tropical Diseases by the author with the aid of his colleagues in Calcutta.

This treatise deals with almost the entire range of therapy and is thus a practical vade mecum for the practice of medicine in the tropics viewed primarily from the standpoint of therapeutics. It falls into six parts. Part I is an extended treatment of the action, modifying agencies and administration of drugs; acidosis and alkalosis; chemotherapy; physical therapy; diet and dietetics in the tropics; pyrexia; hypnotics and analgesics; and tonics. Part II deals with helminthic diseases and gives extensive discussions of the chemistry, pharmacologic action, anthelmintic effects, administration and dosage, toxic effect, treatment of poisoning, and precaution and contraindications of filix mas, kousso, carbon tetrachloride, tetrachlorethylene, oil of chenopodium, santonin, thymol, beta-naphthol, resorcinol derivatives, and arsenic and antimony compounds. The specific treatment for each helminthic infection such as those by various tapeworms, roundworms and flukes is given in the light of the latest experimental results. This part will be of greatest value to practitioners generally, since many helminthic infections are not confined to the tropics and the latest therapeutic advice is generally not quickly accessible.

Part III discusses protozoal diseases, especially amebiasis, leishmaniasis, trypanosomiasis and malaria. Spirilloses also are included here although more properly classified with bacterial infections. This part is also of great value because of the long and extensive experience in India with amebiasis and malaria, neither of which is confined to the tropics. The discussion is on the same plan as in that of helminthic diseases. Of especial importance is the analysis of the results of the compounds of ipecacuanha and of emetine and their various combinations with other agents; of the arsenicals stovarsol and carbarsone and of chiniofon. Less adequate is the discussion of the adjuvant effect of vioform. Experience with carbarsone for amebiasis, used with caution to avoid optical reaction, seems to be quite satisfactory.

The manifold pharmacologic and therapeutic problems that have accumulated about the quinines and their derivatives in the treatment of the malaras are amply presented. The reader will find here the latest information on quinines, on totaquina, the combination of the alkaloids of several species of Cinchona, and on plasmochin and atabrine, two synthetic compounds evolved by using the structural formula of methylene blue as a starting point. Plasmochin has not entirely replaced quinine, since it is destructive only to the parasites in the sexual phases, the so-called crescents, thus rendering the patient noninfective to the mosquito. It still leaves him subject to attacks of malaria, because it does not destroy the asexual forms in the red corpuscles. These facts are obscured in the book by an error (p. 602, line 11) in which the word "plasmodium" occurs in place of "plasmochin." To supplement this drug, another synthetic compound, atabrine, has been produced which is lethal to the asexual stages. This drug has a low toxicity, with a wide margin between the effective therapeutic dose and the toxic dose. The combination of the two drugs affords an effective

tive treatment against both types of parasitic infection by the malarial parasite. Atabrine has attained a great reputation as an effective remedy in preventing relapses in all species of human malaria.

The author adheres to the view that curative treatment, aimed at eradication of the infection, is advisable as a public health measure in territories in which malaria is infrequent and immunities are not readily maintained, and that clinical treatment only, merely to check the disease, be given in regions of a high malarial index.

Part IV discusses bacterial and virus diseases and part V reviews the remedies for miscellaneous tropical diseases, including the bites of poisonous animals and drug addiction. Part VI discusses the omnipresent skin diseases. This is followed by a dictionary of diagnosis and treatment of tropical diseases, an appendix of recent work, and a large list of useful tables. This book has much useful information in it.

The Public Health Program. Under Title VI of the Social Security Act. Supplement No. 126. U. S. Treasury Department, Public Health Service. Paper. Price, 5 cents. Pp. 23. Washington, D. C.: Supt. of Doc., Government Printing Office, 1937.

The purpose of the grants to the states is to strengthen state and territorial health departments and thereby to aid in the development of district, county and city health services and in the training of health department personnel. The provision of medical care, other than that involved in immunization for the prevention of communicable diseases and the treatment of venereal diseases to render cases noninfectious, is not contemplated under the provisions of the act. The objective is not to establish federal jurisdiction over health work within the states but to aid the states in the development and expansion of their own state and local health services. No standard pattern of organization or administrative practice is set up. Since the most important single factor in the success of a public health program is the fitness of those who administer it, an undisturbed tenure of office for competent persons is essential. To secure this competence, all public health workers should eventually receive at least one full year of special training. Extensive research plans in widely separated fields are now being conducted and it is expected that these will be expanded.

Bones: A Study of the Development and Structure of the Vertebrate Skeleton. By P. D. F. Murray, M.A., D.Sc. Cloth. Price, \$2.50. Pp. 203, with 45 illustrations. New York: Macmillan Company; Cambridge: University Press, 1936.

The author discusses briefly certain aspects of the development of the skeleton, especially the relation between the structures seen and the morphogenic factors. The chief value of the book lies in the first four chapters, which deal with embryonic and postembryonic development and with the structure of the normal and modified bony skeleton considered in relation to the function it subserves. The author discusses the primary development of the skeleton, the development of the bony skeleton, functional changes in the forms of bones, mechanical structure of bones, mechanical structure of cartilage and the mechanism of bony adaptation. There is an interesting description of the development of torsions in bones.

Bone structure is to a large degree determined, directly or indirectly, by reaction to the mechanical forces which it is the function of bone to resist. Nevertheless it will have become clear from the facts presented that the time is past when it was possible to describe the whole long and complex story of skeletogenesis in terms of the effects of mechanical stresses, whether of extrinsic and functional origin or arising in direct consequence of the developmental process itself. The form of the cartilaginous model is produced, at least in the case of the larger shafted elements, under theegis of the growth pattern intrinsic from a very early stage within each element. The bony skeleton of the adult shows both in its normal structure and after modification so close a relation to mechanical needs and so great a power of apparently adaptive change that its mechanically suitable nature cannot be doubted. The harmony with functional demands is traceable at all levels of its structure; in the shape of the whole bone, in its division into compact and cancellous bone, in the arrangement of the osteones of the first and of the trabeculae of the second, in the structure

of individual osteones and other lamellar systems, and finally in the intimate composition of the substance bone itself. Every bone structure is a compromise, and no compromise is perfect. The trajectorial theory in its original and most rigid form played a useful part in calling attention to the relation which obviously exists between bony structures and patterns of stress; but, like many theories, it went too far when it claimed all power for its own particular factor and neglected all others.

The position taken in this work is not that of the orthodox trajectorial theory. That theory regards the trabeculae of bone as embodying trajectories in a body of the same form as the bone, stressed in the same way, and of homogeneous composition. The trabeculae are thought of as drawn in such an ideal and hypothetical foundation, and the theory is intimately bound up with the existence of orthogonal structures in which all the trabeculae must cross one another at right angles, a state of affairs which, as stated in an earlier section, is not always found in nature. The view here expressed assumes no such relationship to an ideal homogeneous body, is not affected by the decidedly anisotropic structure of bone, and is compatible with the absence of orthogonal structure.

The Home Treatment of Spastic Paralysis Written in a Simple, Practical Way with Many Detailed Drawings. By Percy Merritt Girard, M.D., F.A.C.S., Chief of Orthopedic Service, Parkland Hospital. Foreword by Earl R. Carlson, B.A., M.S., M.D., Director of Department of Rehabilitation of Motor Disorders, New York Neurological Institute. Cloth. Price, \$2. Pp. 130, with 77 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1937.

This book is designed to help parents of spastic children. It is written for the layman and does not pretend to be a substitute for a doctor's advice and supervision. There is an interesting and instructive foreword by Dr. Carlson, himself a victim of this lesion. The author presents the results of his experience in the treatment of 875 cases of spastic paralysis. He has selected from a large number of exercises those which are most useful in home execution. No elaborate equipment is necessary. He gives the essential facts with regard to spastic paralysis, the location and mechanics of the paralysis, most of the common causes, and recognition of early signs of the condition. He believes that the primary objectives are prevention or correction of deformities and teaching of relaxation and coordination. These are obtained through physical therapy, occupational therapy, the proper selection of toys, and surgery. Dr. Girard brings out the principle of educating reciprocal movements in the treatment of spastic paralysis as well as the principle of muscle reeducation in which only the weaker group is exercised. In other words, it is a matter of coordination rather than muscle weakness. The list of games and toys that make use of both hands rather than emphasizing the use of only the affected arm was well chosen. Practical suggestions are made for the moderately spastic child. Heretofore, books had little material concerning the child who was mildly involved. The book is written in a simple, practical manner and contains a large number of detailed line drawings. It is one of the finest books of its kind and should be in the library of every orthopedic surgeon and every pediatrician and in every home where there is a patient with spastic paralysis.

The Physiology and Pharmacology of the Pituitary Body. By H. B. Van Dyke, Professor of Pharmacology, Peiping Union Medical College, Peiping, China. The University of Chicago Monographs in Medicine. Cloth. Price, \$4.50. Pp. 577, with 55 illustrations. Chicago: University of Chicago Press, 1936.

At a time when authors and publishers vie with one another in their attempts to get new tomes on the organs of internal secretion before the medical public, the great majority of which are half-baked compilations of uncritical reports, the appearance of a really competent review in any phase of endocrinology is an event of more than passing importance. Dr. Van Dyke has reviewed some 5,000 publications on the hypophysis in the preparation of this book; of these, 3,000 were selected for inclusion in the excellent bibliography, which requires nearly 180 pages. A vast amount of information and pseudo-information has been carefully sifted and the conclusions set down concisely and clearly. Not the least of the author's contributions consists in defining the limits of known fact and in pointing out the many deficiencies in our knowledge of the pituitary gland and its functions. The healthy skepticism that pervades

this book will help to provide an urgently needed antidote to much of the nonsense currently believed about this important organ. Among the subjects covered are the comparative anatomy of the pituitary, effects of hypophysectomy, growth-promoting principle, gonadotropic substances, lactogenic principle, thyrotropic factor, interrelations with other glands, and the effects of extracts on the function of various other organs and on the metabolism of various substances. A useful appendix containing scientific and commercial names of glandular principles and preparations is included in the book; this is one of the most extensive lists of this type available, but it is unfortunately far from complete. Format, typography and illustrations are all excellent.

The Diagnosis and Treatment of Arthritis. By Russell L. Cecil, M.D., Sc.D., Professor of Clinical Medicine, Cornell University. Henry A. Christian, M.D., Sc.D., LL.D., General Editor of the Series. (Reprinted from Oxford Monographs on Diagnosis and Treatment.) Cloth. Price, \$4.75. Pp. 263, with 17 illustrations. New York: Oxford University Press, 1936.

The purpose of the author is to bring to the practicing physician a knowledge of the most approved methods in the diagnosis and treatment of arthritis. This reprint from the Oxford monographic series on Diagnosis and Treatment should have appeared as a separate monograph six or seven years ago and at present has not been adequately revised. The author discusses classification of rheumatic fever and various etiologic forms, such as gonococcal, suppurative, allergic, intermittent and traumatic arthritis. He divides acute arthritis into infectious, septic and noninfectious. The first group includes rheumatic fever. The second group includes gonococcal, pneumococcal, suppurative and other less common forms of acute bacterial infection of the joints. Under the third group, non-infectious, there are intermittent hydrarthrosis and allergic and traumatic arthritis. The author believes that there is no disease in the whole field of medicine in which purely symptomatic treatment leads to more barren results. He considers the crucial point in any case of acute or chronic arthritis is to determine whether it is infectious or noninfectious in character. The book is a clear exposition of the subject.

La ponction de la rate. Par P. Émile-Well, médecin des hôpitaux, P. Isch-Wall, assistant à l'Hôpital Tenon, et Suzanne Perlès, chef de laboratoire à l'Hôpital Tenon. Paper. Price, 35 francs. Pp. 148, with 23 illustrations. Paris: Masson & Cie, 1936.

The various procedures habitually employed in clinical medicine in studying splenic enlargement and tumors of the left hypochondrium have sometimes yielded meager information. This monograph presents the results of what contribution splenic puncture makes to the understanding of this subject. While the method of splenic puncture is not a new procedure, the revival of its use in clinical medicine was coincident with the keen interest and recent progress in the diseases of the blood forming system. The authors review the historical background of the procedure. Its use for the most part was confined to research studies. In clinical medicine it was used mainly for the study of parasitic diseases. Its restricted use was based on fear of accidents. The authors stress the necessity of the systematic use of this procedure and caution against carelessness in the technic. By virtue of their use of the procedure in this manner they now feel qualified to discuss the morphologic pictures obtained by means of splenic puncture in various conditions.

The monograph considers the reactions of the spleen as follows:

I. Splenomegalies associated with a reaction of blood series: (a) lymphatic reaction; (b) myeloid reaction; (c) erythroblastic reaction; (d) megakaryocytic reaction; (e) leukoblastic or embryonic reaction.

II. Splenomegalies associated with a macrophagic reaction (infections and parasitic infestations).

III. Splenomegaly associated with tumors.

Normal and abnormal splenograms are presented in tabular form and in black and white drawings, which are well executed with the exception of the Gaucher cell. A small and inadequate chapter is devoted to sternal puncture, with no illustrations. Why it was included in a monograph devoted to splenic puncture was not indicated. It neither contributes nor detracts. The technic and cytology of splenic puncture are well presented

but data on splenic puncture in infants and children are almost neglected. The work reflects a long clinical use of the procedure and the authors present data that should prove valuable to any one doing hematologic work extensively. The material is divided into three parts. In the first part of the monograph the authors describe the technic of splenic puncture and the precautions and contraindications, the normal splenogram and a description of the cells encountered, and the pathologic splenogram and a description of the abnormal cellular elements. Part II is concerned with information obtained by splenic puncture on the nature of the splenomegalies, and part III discusses puncture of tumors in the left hypochondrium and sternal puncture. The bibliography is not extensive or complete but is adequate for the material presented. Information available on the systematic use of splenic puncture has been meager, and this monograph fulfils a definite purpose in supplying these data.

Essentials of Electrocardiography for the Student and Practitioner of Medicine. By Richard Ashman, Ph.D., Professor of Physiology, the Louisiana State University Medical Center, and Edgar Hull, M.D., Assistant Professor of Medicine, the Louisiana State University, New Orleans. Cloth. Price, \$3.50. Pp. 212, with 101 illustrations. New York: Macmillan Company, 1937.

This reflects for the most part the personal experience of the authors, the basis for their criteria of the normal being a series of 100 cases. These closely agree with the results of many workers that have been used in establishing the criteria for graphic interpretation now employed. "Incorporated in the text is a considerable mass of original material." These observations are valuable but might better have been reported elsewhere. Basic physiology is well presented. The last two chapters dealing with disturbances of the cardiac mechanism could have been advantageously introduced earlier, emphasis still being rightly placed on abnormalities indicating myocardial disease. The views regarding bundle branch block and chest leads are those of F. N. Wilson, as is the technic described for obtaining chest leads. Opinions at variance with the views of others are relatively few. Minor variations from standard terminology are noted. The index is good. This is an excellent presentation of a wealth of valuable observations. The student and the practitioner will find the book most useful as a supplement to one of the other more comprehensive textbooks employing "the 'classical' approach" in presentation.

Principles of Pharmacy. By Henry V. Arny, Ph.M., Ph.D., Dean and Professor of Chemistry in the College of Pharmacy of Columbia University. With the collaboration of Robert P. Fischell, B.Sc., Ph.M., Ph.D., Secretary and Chief Chemist, Board of Pharmacy, State of New Jersey. Fourth edition. Cloth. Price, \$8. Pp. 1,139, with 294 illustrations. Philadelphia & London: W. B. Saunders Company, 1937.

This book is primarily written for students of pharmacy, but it contains considerable material with which the physician should be familiar. The volume consists of seven parts: (1) pharmaceutical processes, (2) galenical preparations of the pharmacopeia and those unofficial that are worthy of notice, (3) inorganic chemistry, (4) organic chemistry, (5) chemical testing and analytic methods of the pharmacopeia, and (6) the dispensing of prescriptions. The present edition is based on the Pharmacopeia XI and the National Formulary VI. It is unfortunate that neither New and Nonofficial Remedies nor the recent advances in the chemistry of glandular products are mentioned.

Esplenomegalias crónicas no leucémicas: Indicaciones médicas de la esplenectomía. Por el Dr. Rodolfo Armas Cruz, profesor extraordinario de patología médica. Paper. Price, \$4. Pp. 526, with 29 illustrations. Santiago de Chile: Central Pacífico de Publicaciones, 1936.

This voluminous essay should be of great value for those interested in certain phases of knowledge pertaining to the spleen. The work comprises more than could be expected from the title and is divided into three parts. The first gives a thorough description of the embryology, anatomy, physiology and methods employed in the study of the functions of the reticulo-endothelial system; one chapter of this first part is devoted to the physiology of the spleen. The second part describes methods of investigation of the spleen function; one section treats of hypersplenism; the author offers a definition of this condition and describes several varieties of it and the diagnosis. The third part carries the title of the book and is subdivided into two sections; one deals with hemolytic jaundice

and the other with chronic splenic anemia. Purely surgical conditions, such as abscess, tumor and cyst of the spleen are beyond the scope of the book; the author confines his discussion to nonleukemic splenomegalies in which splenectomy is indicated. His conclusions are based on the correlation of clinical, hematologic and anatomic observations in numerous cases. A large number of charts, photomicrographs and case histories demonstrate the great personal experience of the author. Whether his subdivision of chronic splenomegalies of nonleukemic origin is preferable to Aubertin's classification is a matter of personal view; this is not the place to enter into a polemical discussion. It is questionable from the didactic, diagnostic and therapeutic points of view whether one can approach the problem of nonleukemic splenomegalies without taking into consideration such conditions as polycythemia, essential thrombopenia, aleukemic lymphadenosis or myelosis, multiple chloromas of aleukemic origin, and bronze diabetes. A unanimity of opinions cannot be expected with regard to such obscure problems as are offered by pathologic conditions of the spleen. Notwithstanding the foregoing remarks, the scholarly work merits a high place among monographs on the spleen.

La vésicule biliaire et ses voies d'excrétion. Anatomie—Physiologie—Sémiologie—Pathologie—Thérapeutique. Par M. Chiray, professeur agrégé à la Faculté de médecine de Paris, et I. Pavei, maître de conférences à la Faculté de médecine de Bucarest. Avec un exposé de radiologie vésiculaire. Par A. Lomon, électro-radiologiste des hôpitaux de Paris. Second edition. Paper. Price, 120 francs. Pp. 863, with 203 illustrations. Paris: Masson & Cie, 1936.

The first edition of this monograph was published in 1926. The first part of the new edition covers the details of the anatomy, histology and physiology of the gallbladder and bile ducts. From this point on the author takes up successively methods of physical examination and duodenal drainage and discusses in detail the significance of the types of bile present. There is a long chapter dealing with radiologic examination of the gallbladder, including choledochographic studies. Various types of lesions of the gallbladder are discussed in detail and several reproductions of colored photographs show various types of diseases of the gallbladder and various types of gallstones. There is a good chapter on functional abnormalities of the biliary tract and a chapter on carcinoma of the gallbladder. It would appear, however, that too brief a portion of the book is given to the matter of therapy, only thirty-eight pages being given to the surgical treatment. This chapter on surgical treatment contains too few illustrations. Except for this, each chapter covers the subject matter fully, and the whole monograph furnishes a detailed presentation of the subject of diseases of the gallbladder and bile ducts. There is a detailed bibliography.

A Woman Surgeon: The Life and Work of Rosalie Slaughter Morton. Cloth. Price, \$3. Pp. 399, with one illustration. New York: Frederick A. Stokes Company, 1937.

Good autobiographies are greatly appreciated. That of the distinguished woman surgeon Rosalie Slaughter Morton is a gem. It is a deeply moving story of the evolution of one of the most prominent pioneer women surgeons in the United States. The true tale is full of thrilling, touching or amusing stories. Personal reminiscences are interspersed with sketches of the humanitarian work of the author among the lower strata of various nations; extensive travel and exciting personal adventures are described with a narrative technic rarely found in modern biography. The entertaining book not only provides delightful reading material but offers a picture of an exemplary life, worthy of imitation.

Fifteenth Hospital Yearbook. 1937 Hospital Purchasing File: Directory of Products, Manufacturers' Catalogs, Purchasing and Other Reference Data. Cloth. Price, \$2.50. Pp. 801, with illustrations. Chicago: Modern Hospital Publishing Company, Inc., 1937.

This book contains a discussion of the methods and principles of hospital purchasing, organizing the hospital storeroom, guides and check lists for the purchase of food, equipment and supplies. It presents standards for hospital equipment and supplies as well as chapters on business administration, public aspects of hospital work, minimum hospital standards of various agencies, a glossary of hospital terms, and a directory of hospital and medical associations and national agencies serving hospital and allied fields.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Diphtheria Mistakenly Diagnosed as Tonsillitis.—The plaintiff, "a believer in the profession of naturopathy," engaged the defendant, a naturopath, to treat his infant son for a condition which was diagnosed, it was alleged, as tonsillitis. The child had diphtheria, from which he died. Thereafter the plaintiff sued the defendant, and the trial court gave him judgment for \$1,400. The defendant appealed to the Supreme Court of North Carolina.

The plaintiff's belief in naturopathy, said the court, would not prevent his recovering damages for the death of his son if he proved that the death of the child proximately resulted from the negligence and unskilful treatment of the defendant according to the method he held himself out to know and practice. The defendant was a graduate of the American School of Naturopathy. He had practiced in New York, apparently without a license, and in Florida, where he had obtained a certificate to practice. He had not obtained a license to practice in North Carolina. Nevertheless, he had been engaged in practice in that state and had been previously employed by the plaintiff to treat other members of his family on several occasions. In determining liability in a civil action for damages on the ground of negligence, the court said, the defendant was not required to possess the highest technical skill or the wide scientific knowledge and learning of the well recognized schools of medicine and surgery, or to exercise the utmost degree of care. He was required to exercise that degree of care, knowledge and skill ordinarily possessed by members of his school of practice. Although the defendant held himself out, and the plaintiff, on behalf of his infant son, consulted him, as a practitioner of naturopathy and not as a regular physician, the defendant claimed, the court said, to possess the skill requisite for diagnosis and treatment of disease, and in the performance of what he undertook to do he must be held to the degree of skill and care which he claimed to possess. A person who undertakes to treat the sick and holds himself out as competent to administer a certain kind or character of treatment undertakes to bring to his employment in each case a fair, reasonable and competent degree of skill and reasonable care and diligence in the exercise of his skill and in the application of his knowledge. He undertakes to exert his best judgment and give reasonable attention to the progress of the treatment he prescribes. He is answerable in damages for injuries proximately resulting from want of that degree of knowledge and skill ordinarily possessed by those of his system or method of practice, or from failure to exercise due care and diligence or to use his best judgment in the treatment of the case.

The defendant offered two witnesses, both naturopaths, to show that the treatment of the plaintiff's son, as testified by the defendant, was in keeping with the practice of naturopathy generally, and conformed to the teachings and practices of naturopathy in diseases of this kind. On objection by the plaintiff, this evidence was excluded, the court holding "as a matter of law that the witness was not an expert witness." The witnesses were graduate naturopaths and were licensed to practice naturopathy, respectively, in Virginia and in Florida. The trial court erred, said the Supreme Court, in ruling out this evidence. An "expert," the court said, has been defined as "one who is skilled in any particular art, trade or profession, being possessed of peculiar knowledge concerning the same." The term implies both knowledge from study and practical experience in the art or profession. The common law does not require that an expert witness shall be a person duly licensed to practice medicine. While the competence of a witness to testify as an expert is a question primarily addressed to the discretion of the trial court and its decision is ordinarily conclusive, this rule is subject to the qualification that, when the preliminary question of the competence of the witness is made to turn on a matter of law, it is subject to review. The witnesses should have been permitted to testify.

The fact that the defendant was engaged in treating patients in North Carolina without having obtained a license so to do

was not evidence, in the opinion of the court, of negligence in the treating of the plaintiff's son. The question was not whether he was licensed or not but whether he exercised proper care in the treatment of the patient. If the defendant engaged in treating diseases in violation of the law, he was liable to indictment and on conviction to suffer the prescribed penalties. In a civil action, however, bottomed on the law of negligence, the failure to possess a state license was not material on the question of due care.

For the error committed by the trial court in refusing to permit the defendant's expert witnesses to testify, the Supreme Court reversed the judgment for the plaintiff and remanded the case for a new trial.—*Hardy v. Dahl* (N. C.), 187 S. E. 788.

Charitable Hospitals: Liability When Profit Results from Operation of Hospital.—The plaintiff was a pay patient in the defendant hospital, an institution organized not for profit. A nurse negligently placed a hot water bottle against the plaintiff's leg in such a manner as to cause a third degree burn. Thereafter, the plaintiff instituted suit against the hospital. The trial court, after the plaintiff had finished the presentation of his evidence, directed the jury to return a verdict in the defendant's favor. The plaintiff appealed to the district court of appeal, second district, division 2, California.

The by-laws of the defendant hospital corporation stated that it was organized not for profit. The evidence showed, however, that the hospital operated for profit a number of departments to which the public had access, such as a pharmacy, lunch counter and soda fountain, including magazines and toilet articles; that in 1935, the year in which the plaintiff was injured, the hospital realized a profit of \$62,767; and that it cared for 7,672 patients, of whom only 191 were free patients. The evidence did not indicate that the plaintiff was aware of the charitable status of the hospital or that it claimed to be free from liability for negligence on the part of its employees. The general rule, said the court, applicable to persons receiving benefits from charitable institutions in California was well stated in *Stewart v. California Medical, etc., Ass'n*, 178 Calif. 418, 176 P. 46. In that case the court said:

The true doctrine amounts to this: That where one accepts the benefit of a public or of a private charity, he exempts by implied contract the benefactor from liability for the negligence of the servants in administering the charity, if the benefactor has used due care in the selection of those servants. . . . The character of the institution is to be determined, not alone by the powers of the corporation as defined in its charter, but also by the manner of conducting the hospital. . . . In the instant case, we hold that the trial court was required to look, not only to the defendant's articles of incorporation and by-laws to determine the character of the hospital conducted by it, but also to the method of transacting the business of the corporation. Its finding that the hospital was in fact operated for profit is supported by the evidence, and we see no good reason for exempting the defendant from the liability incurred by other hospitals conducted for profit.

In the present case, said the district court of appeal, the trial court erred in refusing to submit to the jury the issue of plaintiff's claim that the hospital was in fact conducted for profit. The trial court should also have submitted to the jury under appropriate instructions the question of plaintiff's knowledge of defendant's claim to nonliability on account of its charitable activities. The court expressed its disinclination to hold that one who, without knowledge that a hospital claims to be a charitable institution and therefore exempt from liability, applies for admission and is received as a patient, paying the regular rates at which the hospital derives a profit, is without redress for injuries occasioned by negligence on the part of the employees of the hospital on the theory that the patient is accepting the benefits of charity from a benefactor.

The plaintiff further contended that he presented sufficient proof that defendant did not use due care in the selection of its employees to have that issue submitted to the jury. With this contention, the district court of appeal agreed. The director of the hospital's nursing service testified that the nurse causing the injury had submitted a written application for employment, but that the references therein had never been checked and that no inquiry was made of the bureau of nurses of the state department of health with respect to her standing. The chief of the bureau of registration of nurses of the state testified that the nurse had filed an application for registration as a nurse in California but that her registration was rejected on the ground that she was ineligible. This evidence, in the opinion of the

court, was sufficient to call for the submission to the jury of the question whether the defendant had used due care in employing the nurse who attended the plaintiff.

For the reasons stated, the judgment of the trial court for the hospital was reversed.—*England v. Hospital of the Good Samaritan (Calif.)*, 61 P. (2d) 48.

Contracts: Validity of Agreements in Restraint of Professional Practice.—The plaintiffs, practicing physicians, conducted a medical center and clinic in Yates County, N. Y., under the name of the Foster-Hatch Medical Group. They entered into a contract of employment with the defendant, a physician, wherein he agreed not to engage in or practice his profession as a physician in the county of Yates except while in the employment or associated with the plaintiffs, without the written consent of the plaintiffs. If he violated this agreement, he was to pay the plaintiffs the sum of \$10,000 as liquidated damages. After about two and one-half years of service with the plaintiffs, the defendant severed relationship with them and, without their consent, continued to practice in Yates County. The plaintiffs therefore instituted the present action to enjoin the defendant from practicing in violation of his agreement. The trial court dismissed the complaint, and the plaintiffs appealed to the supreme court, appellate division, New York.

Agreements, said the court, imposing restraints on the right of an employee to engage in competitive service after the termination of the contract of service are analogous to, and governed by, the same rules applicable to restrictive covenants in the sales of business and good will. It is manifest that a physician employed as an assistant to another must in the course of his duties become acquainted with the patients of his employer and acquire their confidence and good will. The contract in this case was drawn to provide against the business and good will of the plaintiffs being lost to them in case of the defendant's locating in Yates County after the severance of the employment. The defendant's establishing himself in Yates County for the practice of medicine was a deliberate choice on his part to disregard his agreement not to compete with his former employers. In such circumstances, a court of equity will extend the arm of injunction. Agreements permanently to refrain from the practice of a profession in defined localities have been sustained in many cases. The stipulation in the contract for liquidated damages in case of violation of the agreement does not oust a court of equity from jurisdiction to entertain an application for injunctive relief. The order of the trial court dismissing the complaint was therefore reversed. Thereafter, the defendant appealed to the Court of Appeals of New York which, without a written opinion, affirmed the order of the appellate division.—*Foster v. White (N. Y.)*, 290 N. Y. S. 394; 7 N. E. 710.

Malpractice: Mistake in Diagnosis; Failure to Make a Wassermann Test.—The plaintiff consulted the defendant, a physician, because of a swelling of his left knee. The defendant made a diagnosis of sarcoma and applied a course of treatment that did not improve the condition. On the contrary, the skin over the swelling broke open and a cauliflower mass developed, which increased in size and discharged large quantities of pus. Another physician was consulted, who sent the plaintiff to a hospital, where roentgenograms and a Wassermann test were made and tissue from the diseased area was examined microscopically. Chiefly on the basis of a positive Wassermann reaction, the lesion at the knee was attributed to syphilis and diagnosed not as sarcoma but as a gumma. Anti-syphilitic treatment was administered, followed by immediate improvement. The plaintiff continued, however, to suffer pain and his left leg remained crippled and stiffened. Subsequently the plaintiff sued the defendant, and the jury returned a verdict for the plaintiff for \$25,000. The court thought the amount of the verdict excessive and entered judgment for \$7,000. The defendant appealed to the Supreme Court of Michigan, where, because of an erroneous instruction given by the trial court, the judgment was reversed and the case remanded for a new trial. *Fortner v. Koch (Mich.)*, 261 N. W. 762; abstr. THE JOURNAL, Feb. 22, 1936, page 651.

The second trial resulted in a judgment for the plaintiff for \$5,500, from which the defendant appealed to the Supreme Court of Michigan. One of the contentions made on the second appeal

was that, in the absence of any claim in the declaration that the defendant should have made a Wassermann test, the trial court erred in admitting evidence which tended to show that he failed to make the test. The testimony, said the Supreme Court, showed that the proper method of diagnosis in the case was not only to take the history of the patient but also to have a roentgenogram made, a blood test taken and a biopsy made. Failure of the declaration to state that it was the duty of the defendant to have the Wassermann test made was not fatal, in the opinion of the court. The defendant as a physician knew, or should have known, that this was one of the steps in arriving at a proper diagnosis in the case. The declaration, said the court, was sufficient. Finding no error, the judgment of the trial court was affirmed.—*Fortner v. Koch (Mich.)*, 269 N. W. 222.

Malpractice: Surgical Forceps Left in Patient; Statute of Limitations.—One of the defendants, the surgeon in charge of the Harlan Hospital Association, Inc., performed an abdominal operation on the plaintiff's wife in February 1932. Two years and a half after the operation the patient evacuated from her rectum one half of a surgeon's forceps. A roentgenogram revealed that the other half of the forceps was still in her abdomen and a second operation was performed to remove it. Thereafter the husband sued the hospital and the surgeon to recover damages for the loss of the society and services of his wife and to recover the medical expense incurred by reason of the alleged negligence of the defendants. The trial court sustained a defense that the suit was barred by the statute of limitations, and the plaintiff appealed to the Court of Appeals of Kentucky.

In Kentucky, said the court, an action brought by a husband for injuries to his wife must be commenced within one year after the cause of action accrues, and the cause of action accrues at the time of the injury resulting in the loss of services or consortium. The plaintiff argued, however, that the cause of action did not accrue until it became known by him and his wife, or could have been known by the exercise of ordinary care, that the forceps were left in the abdomen of his wife. But, said the court, a cause of action accrues when a party has the right and capacity to sue, and his right of action is not suspended until such a time as he ascertains that he has a cause of action. Here the injury was the result of negligence in the original operation, and the action is predicated on that negligence. In answer to the plaintiff's contention that the cause of action was fraudulently concealed by the defendant, the court said that, the intent being controlling, fraudulent concealment is necessarily based on knowledge and not on what may be discovered by the exercise of ordinary care. The allegation, therefore, that the defendants knew, or by the exercise of ordinary care could have known, that the forceps were left in the patient's abdomen was not sufficient to show fraudulent concealment. According to the petition, the patient was injured when the first operation was performed, and the plaintiff was then deprived of her services and society, and the only thing that she or the plaintiff did not know was the means whereby the injury was inflicted. Clearly, the fact that she or he was not informed as to the way or means did not have the effect of suspending the one-year statute of limitations. The time of the injury itself is the controlling fact, and not the means by which the injury was inflicted. The judgment of the trial court for the defendants was therefore affirmed.—*Carter v. Harlan Hospital Ass'n (Ky.)*, 97 S. W. (2d) 9.

Society Proceedings

COMING MEETINGS

American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
Montana Medical Association of Great Falls, July 13-14. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.
National Medical Association, St. Louis, Aug. 15-20. Dr. John T. Givens, 1103 Church St., Norfolk, Va., General Secretary.
Pacific Northwest Medical Association, Great Falls, Mont., July 8-10. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
Rocky Mountain Medical Conference, Denver, July 19-21. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

G: 317-348 (April) 1937

- *Granuloma Inguinale: Differentiated from Lymphogranuloma Inguinale. J. U. Reeves, Mobile.—p. 317.
- Anemia in Pregnancy. G. B. Greene, Birmingham.—p. 324.
- Preparalytic and Postparalytic Management of Acute Anterior Poliomyelitis. W. W. Alexander, Florence.—p. 326.
- Hay Fever in Alabama: Analysis of 100 Cases: II. C. K. Weil, Montgomery.—p. 329.

Inguinal Granuloma Differentiated from Lymphogranuloma.—Reaves believes that inguinal granuloma and inguinal lymphogranuloma tend to affect unclean persons; this tendency, combined with the chronicity of the diseases, renders their cure difficult. The existence of other diseases with similar lesions adds to the problem. In one of his cases of inguinal granuloma the disease persisted for twenty-three years before an ultimate cure was established, and at no time was there involvement of the lymph nodes. Inguinal lymphogranuloma, a disease of the lymph nodes caused by a filtrable virus which can be transmitted to several of the lower animals, is of venereal origin and is frequently classified as the fourth venereal disease. Frei and Hoffman distinguish two periods of incubation. One is from the time of the infecting coitus to the appearance of the primary lesion; the other is from the time of the infecting coitus to the onset of the swelling of the inguinal node. The second period varies from ten days to a maximum of six weeks, with an average duration of from two to three weeks. The initial lesion is so mild that it often goes unnoticed by the patient and is rarely observed by the physician. It may be present as a nodular, papular or herpetiform lesion, or it may appear as an intra-urethral erosion simulating gonorrhea.

American Journal of Cancer, New York

29: 651-870 (April) 1937

- Dissemination of Glioma by Extension at a Distance. R. A. Groff, Philadelphia.—p. 651.
- *Relative Incidence of Oophorectomy in Women With and Without Carcinoma of the Breast. W. E. Herrell, Rochester, Minn.—p. 659.
- Pincytosis by Malignant Cells. W. H. Lewis, Baltimore.—p. 666.
- Development of Tumors in Female Mice Treated with 1:2:5:6-Dibenzanthracene and Theelin. Isabella H. Perry and L. L. Ginzton, San Francisco.—p. 680.
- Fluorescence Spectrum of 3:4-Benzpyrene. I. Hieger, London, England.—p. 705.
- Hodgkin's Disease of Lung. M. J. Fein and L. H. Meeker, New York.—p. 715.
- Pleomorphic-Cell Sarcoma of Gallbladder: Report of Two Cases. A. B. Ragins, Chicago.—p. 722.
- Paget's Disease Associated with Hypernephroma. H. Charache, New York.—p. 729.
- Coexistence of Mammary Carcinoma and Axillary Tuberculous Lymphadenitis. A. H. Potter, Springfield, Ohio.—p. 733.
- Statistics on Morbidity and Mortality from Cancer in the United States. L. I. Dublin, New York.—p. 736.

Oophorectomy and Carcinoma of the Breast.—Herrell finds that of 1,906 patients with carcinoma of the breast only twenty-eight had undergone complete oophorectomy before mammary carcinoma was found. If those cases are eliminated in which oophorectomy was performed so short a time before the diagnosis of carcinoma of the breast that the procedure could hardly be said to influence the development of the disease, that is, less than three years before, the incidence of castration or complete oophorectomy falls to the low point of 1 per cent. The incidence of complete oophorectomy or castration was approximately ten times as great among the 1,011 non-cancer bearing women as in the group of women with carcinoma of

the breast. The accumulating evidence is that ovarian secretions do in some way play a definite part in the development of mammary tumors, not only in mice but also, as these studies strongly suggest, in women. The genetic factor is perhaps the most baffling aspect of the problem as it bears on the human being and indeed, in that bearing, seems beyond control. Yet, the ovarian functions are factors in the internal environment of the individual and, as these results indicate, probably play a definite part in the incidence of mammary cancer; these factors are, furthermore, controllable. The study supplies excellent indication that the ovarian rôle may be a definite one in human beings, as it is in animals whose genetic factors can be more or less controlled at will. In recent years castration by radiation combined with surgical operation has been regarded with considerable interest by some in the treatment of mammary carcinoma. The time to combat cancer is not in the inoperable stage but, if possible, before it develops, and this can be accomplished only when more is known concerning the factors which underlie the genesis of the disease.

Archives of Dermatology and Syphilology, Chicago

35: 767-1010 (May) 1937

- Xanthoma of Skin and Larynx Associated with Carcinoma of Stomach and Regressive Xanthoma of Pons. F. D. Weidman and H. W. Schaffer, Philadelphia.—p. 767.
- Position of "Pseudodiabetic Xanthoma" Among Lipoid Disturbances of Skin (Urbach). F. D. Weidman, Philadelphia.—p. 815.
- *Treatment of Epithelioma of Lip by Electrodesiccation: Technic and Preliminary Report of Results During Past Five Years. H. Morrow, H. E. Miller and L. R. Taussig, San Francisco.—p. 821.
- Purpura: Classification and Treatment, with Especial Reference to Treatment with Snake Venom. S. M. Peck, N. Rosenthal and L. Erf, New York.—p. 831.
- Herpes Zoster and Herpes Simplex: Report of Case in Which Both Appeared Simultaneously; Analysis of Their Etiology. W. H. Goeckerman and L. F. X. Wilhelm, Los Angeles.—p. 863.
- Fixed Drug Eruptions. E. W. Abramowitz, New York, and M. H. Noun, Des Moines, Iowa.—p. 875.
- *Relation of Diet to Cutaneous Infection: Study of Influence of Varying Carbohydrate and Fat Intakes and of Fasting on Experimental Pyogenic Cutaneous Infections in Dogs, with Comparative Determinations of Glycogen Content of Skin and Liver. D. M. Pillsbury and T. H. Sternberg, Philadelphia.—p. 893.
- Sternal Puncture: Diagnostic Aid in Leukaemia Cutis; Possible Aid in Differentiating Lymphoblastomas. L. B. Kingery, E. E. Osgood and A. H. Illge, Portland, Ore.—p. 910.
- Nodular Diffuse Scleroderma. J. Butler and C. W. Laymon, Minneapolis.—p. 919.
- Bile Pigment Metabolism in Diseases of Skin. J. F. Burgess and I. M. Rabinowitch, Montreal.—p. 932.

Electrodesiccation of Epithelioma of Lip.—Morrow and his co-workers have treated epithelioma of the lip by means of curettage followed by electrodesiccation for the last five years. Twenty-three of fifty-four patients treated in the clinic and thirty-one of eighty-five of those treated at the office could not be traced. Of the fifty-four office patients traced, forty-three were well and had no evidence of disease from six months to five years after treatment. Of the twenty-six clinic patients traced, twenty-three were apparently cured. A number of the patients classified as well have had recurrences which responded to the same form of treatment. Others have had new lesions on a different portion of the lip. The clinical and cosmetic results are apparently as good as those which follow surgical therapy. This method of treatment is recommended because of its effectiveness, the ease with which it can be applied and its small expense to the patient.

Diet and Cutaneous Infection.—Pillsbury and Sternberg observed the reaction of dogs to the intradermal injection of broth suspensions of living staphylococci and streptococci. The dogs were divided into groups receiving low carbohydrate, high carbohydrate or high fat diets or fasting. The cutaneous infections were in general definitely more severe in animals on a high carbohydrate intake than in those on a low carbohydrate or a high fat diet and in fasting dogs. Representative determinations of the sugar content of the blood indicated that no significant variations from normal occurred. In six of eight animals given a high fat diet, evidence of acidosis developed; the infections noted in these animals with one exception were mild. The glycogen content of the skin showed but slight response to variations in the diet, and there was no evidence indicating that it was of any great importance in the metabolism of the skin or in the organism as a whole.

Journal of Clinical Investigation, New York

16: 279-478 (May) 1937

- Variations in Permeability of Red Blood Cells in Man, with Particular Reference to Conditions Obtaining in Pernicious Anemia. O. Bang and S. L. Ørskov, Copenhagen, Denmark.—p. 279.
- *Influence of Muscular Exercise on Blood Sugar Concentrations. Florence H. Smith and K. A. Smith, Chicago.—p. 289.
- Clinical Studies of Blood Volume: I. Clinical Application of Method Employing Azo Dye "Evans Blue" and Spectrophotometer. J. G. Gibson 2d and W. A. Evans Jr., Boston.—p. 301.
- Id.: II. Relation of Plasma and Total Blood Volume to Venous Pressure, Blood Velocity Rate, Physical Measurements, Age and Sex in Ninety Normal Humans. J. G. Gibson 2d and W. A. Evans Jr., Boston.—p. 317.
- *Relation of Thyroid and Parathyroid Glands to Calcium and Phosphorus Metabolism: Study of Case with Coexistent Hypoparathyroidism and Hyperthyroidism. O. Cope and G. A. Donaldson, Boston.—p. 329.
- Gastro-Intestinal Studies: VII. Excretion of Xylose in Pernicious Anemia. O. M. Helmer and P. J. Fouts, Indianapolis.—p. 343.
- Significance of Sodium and Potassium Content of Muscle Tissue and Relation of Amount of Edema Fluid in Muscle to Level of Serum Protein in Experimental Nutritional Edema. W. B. McClure and Winifred Franz Hinman, Chicago.—p. 351.
- Composition of Human Gallbladder Bile and Its Relationship to Cholelithiasis. J. G. Reinhold, L. K. Ferguson and A. Hunsberger Jr., Philadelphia.—p. 367.
- Concerning Naturally Occurring Porphyrins: V. Porphyrins of Feces. C. J. Watson, Minneapolis.—p. 383.
- Pathology of Pregnancy Toxemias. H. M. Zimmerman and J. P. Peters, New Haven, Conn.—p. 397.
- *Renal Physiology in Lobar Pneumonia. L. E. Farr and T. J. Abernethy, New York.—p. 421.
- Studies of Circulation in Pernicious Anemia. H. J. Stewart, N. F. Crane and J. E. Deitrick, New York.—p. 431.
- Determination of Blood Ascorbic Acid. M. Pijoan and F. Klemperer, Boston.—p. 443.
- Neutralization Tests in Poliomyelitis: Serums Taken During Acute and Convalescent Stages of Disease and Tested with Passage Virus and Strain Isolated During the 1935 New York City Outbreak. M. Brodie, A. E. Fischer and M. Stillerman, New York.—p. 447.
- Macrocytic Anemia in Pregnant Women with Vitamin B Deficiency. Katharine O'Shea Elsom, with technical assistance of A. B. Sample, Philadelphia.—p. 463.
- Chronaximetric Examinations in B Avitaminosis During Pregnancy. F. H. Lewy, Philadelphia.—p. 475.

Muscular Exercise and Blood Sugar.—The Smiths determined the effect of exercise on glycosuria and glycemia in twelve cases of diabetes mellitus treated with insulin, in four of diabetes mellitus treated without insulin, in three of renal glycosuria, in two of hypotension, in one patient with glycosuria of pregnancy, in one obese patient, in one with epilepsy and in three normal individuals. Exercise of sufficient intensity and duration, they found, will lower the postprandial blood sugar in controlled diabetes mellitus treated with or without insulin, in renal glycosuria, in hypotension, in obesity and in normal subjects. Exercise in the uncontrolled case of diabetes, in the amounts performed in these experiments, does not have a noticeable effect in lowering the postprandial blood sugar. Exercise seems to have the greatest effect in lowering the postprandial blood sugar in the irregularly controlled case of diabetes, when measured by the difference in the resting and exercising blood sugar levels at the end of exercise, and by the resulting clinical symptoms at this time. Exercise of the intensity performed in these experiments is not sufficient to lower the blood sugar below normal fasting levels in nondiabetic subjects.

Thyroid and Parathyroid in Calcium and Phosphorus Metabolism.—Cope and Donaldson studied the calcium and phosphorus metabolism in a patient with recurrent thyrotoxicosis and postoperative parathyroid tetany. When the metabolic rate was maintained within normal limits with iodine medication, the calcium and phosphorus ratios were characteristic of parathyroid tetany. When hyperthyroidism was present, a marked increase in the negative balance of calcium and phosphorus beyond normal limits was found, even though signs of diminished parathyroid activity continued. Increased thyroid activity was followed by a rise of the subnormal blood serum calcium level toward normal and a decrease in the signs of tetany. The reverse occurred with a decrease in thyroid function. An acute infection of the upper part of the respiratory tract was associated with an increase in the amount of clinical tetany and also with a spontaneous remission of the thyrotoxicosis. Because of the probably continued subnormal activity of the parathyroid it is concluded that the changes of calcium and phosphorus metabolism were due to the changes in thyroid

function. The relation of the parathyroid, thyroid, anterior pituitary and adrenal cortical glands in calcium metabolism is discussed.

Renal Physiology in Lobar Pneumonia.—Farr and Abernethy observed twenty-eight patients, admitted consecutively to the Rockefeller Institute Hospital for treatment of pneumonia, for periods up to six months. On admission a urea clearance test was done; the following day a sediment count was performed. Urea clearances were repeated every three days until crisis and on the day of crisis. During the acute illness, twelve hour clearances were done. Another urea clearance was done five days after crisis and at the time of discharge. Following discharge, urea clearances were done on the patients in the outpatient clinic once a month until renal function had been normal for two months. Sediment counts were done on the first and on the sixth day after crisis. Quantitative estimations of urinary protein by the method of Shevky and Stafford were performed daily during the febrile period and as long thereafter as protein was present. Blood pressure determinations were done daily, and retinal examinations were made on each patient during the acute illness as well as in convalescence. None of the patients gave any history of pre-existing renal disease. During the febrile period the average urea clearance for eleven patients in the age group 10 to 29 years was elevated to 147 per cent of normal. The average for four patients from 30 to 39 years of age was 111.8 per cent of normal; of five patients from 40 to 49 years of age, 97.7 per cent normal, and of five patients from 50 to 65 years of age, 82.6 per cent of normal. The clearances done immediately after crisis and while the patient was still in the hospital did not show a rapid return to normal. At no time during the acute illness did any of the younger patients have a urea clearance below 110 per cent of normal. In the age group 30 to 40 years there was only moderate hyperfunction during the first ten days of the disease, but in no instance was hypofunction noted. In the age group 40 to 50 years there was no increase of the urea clearance during the acute and convalescent periods of the illness. The clearance returned to an average value for this group in about three months. In the oldest group there was no definite shift in the clearance below normal minimum, but the values during the acute illness were in general somewhat below normal average. The blood urea nitrogen in all but two of the patients at the time of admission was within normal limits. The amount of protein lost in the urine by these patients during the febrile period was negligible. The majority excreted less than 0.1 Gm. of protein daily throughout their entire hospital stay. In no instance was the number of red blood cells excreted in twelve hours greater than the normal values defined by Addis. Casts, however, were uniformly increased in number, with the hyaline type predominating. When the patients were extremely ill, the proportion of granular casts increased. In the two patients who died, the differential cast count revealed 100 per cent granular casts with a large number of casts excreted in both instances. There was no significant alteration in the blood pressure accompanying the alteration in the urea clearance. In general, the blood pressure tended to be a little below normal during the febrile period of the disease, returning to the usual normal levels during convalescence. Daily measurements of fluid intake and output were made on these patients and no deviations from the expected relations were noted. There was no relation between fluid intake and clearance, or between fluid intake and the number of observed formed elements in the urine. Sodium chloride in therapeutic doses had no demonstrable effect on the urea clearance. There was no demonstrable difference between the effects of different pneumococcus types on renal function. Nor did the early and effective use of therapeutic serums have any demonstrable effect on the renal function during the acute illness or during serum disease.

Journal Industrial Hygiene & Toxicology, Baltimore

19: 155-188 (April) 1937

- Occurrence of Silicosis in Manufacture of Silicon Alloys. T. Bruce, Stockholm, Sweden.—p. 155.
- Further Studies of Total Pulmonary Capacity and Its Subdivisions in Cases of Pulmonary Fibrosis. N. L. Kaltreider, W. W. Fray and H. Van Zile Hyde, Rochester, N. Y.—p. 163.
- Quartz in Industrial Dusts and Deposits on Human Lung Tissue: X-Ray Diffraction, Chemical and Spectrographic Studies. V. Hicks, Olive McElroy and Mary E. Wargo, Pittsburgh.—p. 177.

Journal-Lancet, Minneapolis

57: 179-238 (May) 1937

- *Clinical Changes Produced by Diarrhea and Their Restitution. L. F. Hill, Des Moines, Iowa.—p. 179.
- Observations on Pneumonia in Childhood. E. D. Anderson, Minneapolis.—p. 184.
- Asphyxia Neonatorum. R. E. Swanson, Minneapolis.—p. 186.
- The Management and Feeding of the Premature Infant. A. V. Stoesser, Minneapolis.—p. 190.
- A Few Common Dermatoses of Infancy and Childhood. C. W. Laymon, Minneapolis.—p. 197.
- The Trend of Mortality in Insured Children. K. W. Anderson, Minneapolis.—p. 202.
- Prevention of Whooping Cough. E. J. Huenekens, Minneapolis.—p. 207.
- Growing Feet. E. T. Evans, Minneapolis.—p. 209.
- State Medicine in Minnesota. C. B. Young and J. A. Myers, Minneapolis.—p. 212.
- *Vitamin C and Tuberculosis. C. K. Petter, Oak Terrace, Minn.—p. 221.
- The Cultural Side of a Doctor's Life. J. G. Parsons, Crookston, Minn.—p. 224.

Clinical Changes Produced by Diarrhea.—Hill declares that clinical changes result from diarrhea only when the diarrhea is of a severe type. Mild types of diarrhea produce little or no evidence of illness beyond fretfulness. The symptoms produced by a severe type of diarrhea are usually described under the terms of "alimentary intoxication" or "intestinal toxemia." The clinical changes entering into the picture of alimentary intoxication are subdivided into athrepsia, anhydremia and dehydration, acidosis and toxicosis, and are discussed separately. The therapeutic indications for restitution of the clinical changes brought about by severe diarrhea are the replacement and maintenance of the fluid and mineral balance of the blood plasma and tissues of the body. Protein milk, acidified milk and raw apple are suggested as measures to be used in dietary management.

Vitamin C and Tuberculosis.—Petter administered vitamin C in a chocolate-malt-milk base. The preparation contains 50 mg. of chemically pure cevitamic acid and 7½ grains (0.5 Gm.) of dibasic calcium phosphate in two heaping teaspoonfuls, or 20 Gm. This amount was given three times daily in 7 ounces (200 cc.) of milk. The preparation as given in milk supplied 150 mg. of vitamin C daily and added 654 calories to the regular diets. Of the forty-nine adults treated, thirty showed definite improvement, in twelve there was no change, and seven were definitely worse. Twenty-one children showed improvement in weight and general condition. Elimination of cevitamic acid was found to be below normal in cases of advanced tuberculosis and was brought up to normal by feeding this vitamin in the foregoing doses.

Medical Annals of District of Columbia, Washington

6: 87-116 (April) 1937

- Present Knowledge on Rhythm of Human Fertility: Some Biologic and Physiologic Considerations Affecting Its Practical Application to Problems of Sterility and Birth Control. P. Willson, Washington.—p. 87.
- Arteriosclerosis. J. F. Elward and P. Morgenstern, Washington.—p. 99.
- Significance of Vascular Changes in Retina. B. Rones, Washington.—p. 104.
- Minimizing of Psychic Trauma in Induction of Anesthesia in Children. E. B. Macon, Washington.—p. 107.
- Legal Responsibility Incident to Diagnosis and Treatment. F. A. Fenning, Washington.—p. 108.

Military Surgeon, Washington, D. C.

80: 331-410 (May) 1937

- Physical Environment and Effective Man Power. C. A. Mills.—p. 331.
- Neurinoma (Schwannoma): Case Report. H. P. Makel.—p. 338.
- Bilateral Renal Tuberculosis: Case Report. C. Ferguson.—p. 341.
- Garbage Racks in Control of Flies. J. H. Forsee.—p. 344.
- Regional Ileitis. F. J. Vokoun.—p. 347.
- American World War Hospital Center in France. T. J. Burrage.—p. 352.
- Handling of Extensive Outbreak of Athlete's Foot Aboard Ship. W. S. Sargent.—p. 360.
- Dentistry in the Army. J. A. Boston.—p. 365.
- Syphilitic Meningitis Simulating Acute Epidemic Meningitis: Case. M. M. Green and R. J. Hoagland.—p. 366.
- Spectral Roentgenology. M. L. Reif.—p. 369.
- Time and Money Saved in Treatment of Hay Fever. G. D. McGrew.—p. 371.
- Typhoid Fever Aboard the Freighter "Victoria City." J. S. Bowen and C. H. Halliday.—p. 374.
- Marching Efficiency. A. Steindler.—p. 377.
- Postarsenical Hemorrhagic Encephalitis: Report of Case. C. G. Blitch.—p. 385.

Minnesota Medicine, St. Paul

20: 269-344 (May) 1937

- Functions of Spleen and Thymus. L. Asher, Berne, Switzerland.—p. 269.
- Interprofessional Relations: Is There a Policy? C. H. Rogers, Minneapolis.—p. 274.
- Comparative Statistical Ten Year Review of Cesarean Sections Performed at Ancker Hospital. A. G. Schulze, St. Paul.—p. 282.
- Episcleritis and Its Relation to Disease of Female Pelvic Organs. W. L. Benedict, Rochester.—p. 287.
- Pilonidal Sinus. W. G. Strobel, Duluth.—p. 292.
- Duodenostomy for Duodenal Stasis. George Earl, St. Paul.—p. 297.
- New Anal Retractor. H. E. Hullsiek, St. Paul.—p. 300.

Nebraska State Medical Journal, Lincoln

22: 165-204 (May) 1937

- Diseases of Thyroid Gland. C. H. Arnold and L. V. Gibson, Lincoln.—p. 169.
- The Surgical Treatment of Hypertension. J. Dewey Bisgard, Omaha.—p. 174.
- Results of Treatment of Lobar Pneumonia. A. L. Smith, Lincoln.—p. 178.
- Peripheral Vascular Disease: IV. Diabetic Gangrene. C. W. McLaughlin Jr., Omaha.—p. 182.
- Prontosil and Prontylin: Case Report. J. D. McCarthy, Omaha.—p. 186.
- Meckel's Diverticulum Containing Aberrant Gastric Mucosa and Pancreatic Tissue. F. C. Hill and L. Cohen, Omaha.—p. 187.
- Botulism: Report of Two Cases. F. L. Krampert, Imperial.—p. 189.
- Radical Treatment of Carbuncles. R. L. Gorrell, Clarion, Iowa.—p. 190.

New England Journal of Medicine, Boston

216: 727-772 (April 29) 1937

- *Syndrome Characterized by Osteitis Fibrosa Disseminata, Areas of Pigmentation and Endocrine Dysfunction, with Precocious Puberty in Females: Report of Five Cases. F. Albright, A. M. Butler, A. O. Hampton, Boston, and Patricia Smith, Baltimore.—p. 727.
- Treatment of Cardiovascular Emergencies. J. M. Faulkner, Boston.—p. 747.
- Heart Sounds in Pulmonary Tuberculosis. A. S. Kennedy, Hamilton, Ont.—p. 751.
- 216: 773-820 (May 6) 1937
- Importance of Detail in the Art of the Care of the Patient. O. H. P. Pepper, Philadelphia.—p. 773.
- Urologic Complications of Cancer of Rectum. J. D. Barney and S. B. Kelley, Boston.—p. 779.
- Treatment of Ambulatory Diabetic Patient with Protamine Zinc Insulin. J. Rosenthal and Helen E. Finkelstein, Boston.—p. 784.
- Study of Efficiency of Carbon Microphone Hearing Aids. F. L. Weille, Boston, and B. H. Billings, Cambridge, Mass.—p. 790.

Osteitis Fibrosa and Precocious Puberty.—Albright and his colleagues report five cases of a syndrome characterized by (1) bone lesions which have a marked tendency to be unilateral and which show osteitis fibrosa on microscopic examination, (2) brown nonelevated pigmented areas of the skin which tend to be on the same side as the bone lesions and (3) an endocrine dysfunction which in the female is associated with precocious puberty. The multiple bone cysts have a distribution suggesting a relation to nerve roots or to an embryologic defect in the myotomes. The precocity is unusual in that it does not lead to sterility or to other endocrine disturbances. Certain circumstantial evidence, especially the fact that the precocity apparently does not occur in males, suggests the hypothesis that this part of the syndrome is due to a disturbance in the follicle-stimulating hormone of the anterior pituitary. Small testes with normal secondary sex characteristics were present in the one case occurring in a male. The bone lesions consist of multiple circumscribed areas of what appears to be osteitis fibrosa with normal bone elsewhere. The term osteitis fibrosa disseminata is suggested to differentiate the condition from osteitis fibrosa generalisata (hyperparathyroidism) and osteitis fibrosa localisata (solitary bone cyst). Several cases observed elsewhere were confused with hyperparathyroidism. The bone manifestations, however, differ from hyperparathyroidism in that they are spotty rather than generalized and are not attended by changes in calcium and phosphorus metabolism. The suggestion is made that the endocrine disturbance as well as the bone lesions and pigment spots may be manifestations of an underlying neurologic disturbance or of an embryologic defect.

Philippine Islands Med. Association Journal, Manila

17: 133-196 (March) 1937

- Closed Intrapleural Pneumolysis: Jacobaeus Operation: Preliminary Report. M. Cañizares, Manila.—p. 133.
 Can We Prevent Effusion During Pneumothorax Treatment? M. Quisumbing, San Pablo, Laguna.—p. 143.
 Typhus Fever in the Philippines: I. Weil-Felix Reaction of 500 Febrile Cases. A. P. de Roda, Manila.—p. 147.
 Rickettsia-like Bodies in Guts of Head Lice from Typhus Cases: Preliminary Report. E. Y. Garcia, Manila.—p. 157.
 Military Medicine. V. Luna, Manila.—p. 161.

Physiological Reviews, Baltimore

17: 153-334 (April) 1937

- The Male Sex Hormones. F. C. Koch, Chicago.—p. 153.
 Rods, Cones and Chemical Basis of Vision. S. Hecht, New York.—p. 239.
 Formation and Destruction of Red Blood Cells. R. Isaacs, Ann Arbor, Mich.—p. 291.
 Nature of Uterine Contractility: Survey of Recent Trends. S. R. M. Reynolds, Brooklyn.—p. 304.

Public Health Reports, Washington, D. C.

52: 427-464 (April 9) 1937

- Treatment of Blacktongue with Preparation Containing "Filtrate Factor," and Evidence of Riboflavin Deficiency in Dogs. W. H. Sebrell, R. H. Onstott and D. J. Hunt.—p. 427.
 Labile Bacterial Antigens and Methods of Preparing and Preserving Them. S. Mudd, E. J. Czarnetzky, H. Pettit and D. Lackman.—p. 434.
 Age of Gainful Male Workers in Different Geographic Regions of the United States, 1920 and 1930: Studies on the Age of Gainful Workers Number Two. W. M. Gafafer.—p. 437.

52: 465-506 (April 16) 1937

- *Studies on Trichinosis: I. Incidence of Trichinosis as Indicated by Postmortem Examination of 300 Diaphragms. M. C. Hall and B. J. Collins.—p. 468.
 Hosts of Immature Stages of Pacific Coast Tick *Dermacentor occidentalis* Neum (Ixodidae). G. M. Kohls.—p. 490.

52: 507-536 (April 23) 1937

- Radio Pratique: Pratique by Wireless in Lieu of Quarantine Inspection for Passenger Vessels. C. V. Akin.—p. 507.
 Studies on Trichinosis: II. Some Correlations and Implications in Connection with Incidence of Trichinae Found in 300 Diaphragms. M. C. Hall and B. J. Collins.—p. 512.

52: 537-586 (April 30) 1937

- Sickness Among Male Industrial Employees During Final Quarter of 1936 and the Year as a Whole. D. K. Brundage.—p. 537.
 Studies on Trichinosis: III. Complex Clinical Picture of Trichinosis and Diagnosis of Disease. M. C. Hall.—p. 539.

Trichinosis.—Hall and Collins examined 300 diaphragms from patients representing practically all parts of the United States. With these cases as a basis, they expect to be able to study the correlations of the incidence of trichinae with such data as military or civilian status, association with land and sea, high and low economic-social status, mental derangement associated with long hospitalization, and the absence of any such derangement associated with prolonged hospitalization, as well as to study correlations with sex, race and age. Their study of incidence by the use of the microscopic and digestion-Baermann technics affords an opportunity to check the value and limitations of each technic and to make a tentative estimate of the probable error in previous studies. If they take their unweighted average of approximately 12.5 per cent (on the basis of 1,778 cases reported up to the present time and the forty-one cases in their 300 diaphragms examined), a figure which for several reasons is obviously too low, it implies that one out of every eight persons in our population of 130,000,000 persons is infested with trichinae, or approximately 16,000,000 persons above the age of infancy, provided the incidence in cadavers examined gives the incidence for the general population. The United States, so far as data are available, has the greatest problem in trichinosis of any country in the world, even though the supposed incidence in some other countries is greater than it is thought to be. Meat inspection of a quality equivalent to that of the federal meat inspection system should be extended to all meat produced in the United States. The swine sanitation system should be used much more widely by hog raisers. The campaign to educate the public against the use of any raw pork, or of any pork products customarily eaten uncooked that do not originate in establishments under federal inspection, should be more intensive.

South Carolina Medical Assn. Journal, Greenville

33: 73-110 (April) 1937

- The Roper Hospital Cancer Clinic: Review of a Year's Work. T. M. Peery, Charleston.—p. 73.
 Symptoms Calling for Anorectal Examination, and a Brief Description of Different Steps. W. H. Poston, Pamplico.—p. 77.

Southern Medical Journal, Birmingham, Ala.

30: 355-450 (April) 1937

- The Function of the Otolaryngologist. M. F. Arbuckle, St. Louis.—p. 355.
 Duplications of Alimentary Tract. W. E. Ladd, Boston.—p. 363.
 Electrocardiograms Similar to Those of Coronary Thrombosis, with Especial Reference to Those Obtained in Pulmonary Infarction. W. S. Love Jr. and G. W. Brugler, Baltimore.—p. 371.
 Tumors of the Chest Wall. G. A. Stewart, Baltimore.—p. 375.
 Sarcoma of the Choroid. K. W. Cosgrove, Little Rock, Ark.—p. 379.
 One Stage Abdominoperineal Resection for Carcinoma of Rectum. S. McLanahan, Baltimore.—p. 382.
 Common Errors in Diagnosis and Treatment of Cancer of the Colon and Rectum. F. W. Rankin, Lexington, Ky.—p. 386.
 Roentgen Therapy in Carcinoma of Rectum. E. A. Merritt, Washington, D. C.—p. 392.
 *Associated Incidence of Tuberculosis and Malignant Tumors, with Especial Reference to Intrathoracic Tuberculosis and Carcinoma of Alimentary Canal. R. M. Moore and M. P. Neal, Columbia, Mo.—p. 395.
 Childhood Type Tuberculosis: Some Problems of Public Health Administrator. W. B. Grayson and W. M. Smith, Little Rock, Ark.—p. 400.
 Anterior Pituitary Insufficiency (Simmonds' Disease): Report of Case. S. F. Ravenel, Greensboro, N. C.—p. 403.
 Disturbances of Pituitary Function. T. B. Fletcher, Baltimore.—p. 405.
 Human Sterility. P. Titus, Pittsburgh.—p. 410.
 Diseases of the Esophagus from the Point of View of the Internist. O. H. P. Pepper, Philadelphia.—p. 418.
 Occupational Dermatoses: Their More Uniform Management. C. G. Lane, Boston.—p. 422.
 Clinical Manifestations of Virus Diseases of Central Nervous System. D. C. Wilson, University, Va.—p. 427.
 Fracture Dislocations of Upper End of Humerus. G. W. Leadbetter, Washington, D. C.—p. 433.
 Correlation of Clinical and Anatomic Studies of Vesical Neck. R. E. Van Duzen and W. W. Looney, Dallas, Texas.—p. 436.
 Medical Education in New Spain. W. B. Blanton, Richmond, Va.—p. 439.

Tuberculosis and Malignant Tumors.—In 354 consecutive necropsies on individuals 1 year of age or older Moore and Neal found seventy-three instances of malignant growths and eighty-nine of active tuberculosis. In these there were twenty cases in which active tuberculosis and a malignant tumor existed concurrently. If a comparison is made between this double lesion group and the total number of cases in each of the two diseases, it is found that a malignant neoplasm also was present in 22.47 per cent of this series with active tuberculosis, while active tuberculosis was present in 27.4 per cent of those with a malignant growth. Because of the high cancer incidence in this series, 20.62 per cent, the percentage relationships are unquestionably out of proportion for the general population. Comparison reveals that the incidence of active tuberculosis and malignant tumors, each as an entity, was higher in the female than in the male, and consequently the incidence of the double lesion group was greater in the female. The incidence of the double lesion as well as that of malignant manifestation in general was appreciably higher in the white than in the Negro race. The seventy-three cases of malignant growths were found to be carcinoma fifty-three, sarcoma ten, hypernephroma four, mesothelioma two, Hodgkin's disease two, malignant glioma one, and malignant thymoma one. The concomitant occurrence of active tuberculosis and carcinoma, particularly when the patient is 35 years of age and older, in many cases is due to the breakdown of a previously existing inactive or latent tuberculous lesion rather than to a reinfection. The high incidence of association, 21.42 per cent, of active pulmonary and tracheobronchial lymph node tuberculosis with carcinoma of the esophagus and stomach is due in the majority of such cases to the activation of a latent tuberculous focus as a result of the cachexias, toxemias and malnutrition; that develop from cancers at these sites. The unaccountable rapidity and unfavorable clinical progress of many cases of cancer is due to the activation of a latent tuberculous lesion. In the reactivation of tuberculosis in elderly patients, a malignant condition is to be considered a factor in more than 20 per cent of the cases. There is almost a four times greater incidence of active tuberculosis, with a concurrent malignant neoplasm, in the age group above 35 than in that below, the respective percentages being 7.25 and 1.88.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

10: 293-364 (April) 1937

- Roentgenographic Image in Diagnosis of Lesions of Bone. C. G. Sutherland, Rochester, Minn.—p. 295.
The Commonwealth X-Ray and Radium Laboratory, University of Melbourne. M. J. Holmes and C. E. Eddy.—p. 318.
Tomography, by Means of Simple Attachment to Potter-Bucky Couch. E. W. Twining.—p. 332.
Method for Routine Purification of Radon. T. H. Oddie.—p. 348.
Radium Therapy of Malignant Tumors of Superior Air Passages. Torrigiani and Palumbo.—p. 360.

British Medical Journal, London

1: 695-738 (April 3) 1937

- *Angina Innocens: Clinical Study. G. Bourne.—p. 695.
Prevention of Disease in Industry. D. Hunter.—p. 700.
Epidemic Catarrhal Jaundice in School Children. A. A. Lisney.—p. 703.
External Version for Breech Presentations. C. Mehta.—p. 706.
New Stabilizer for Schick Toxin. A. T. Glenney and Muriel F. Stevens.—p. 709.

Angina Innocens.—Bourne suggests the term angina innocens for the condition usually labeled pseudo-angina. Angina innocens is descriptive of the cardiac and at the same time the innocent nature of the pain. It is associated with no definite cardiac disease, is apparently of functional origin and has a favorable prognosis. A study of thirty-eight patients suffering from such pain, who have been under investigation for varying periods since 1929, is given. Simultaneously a study of a large number of patients complaining of the other forms of cardiac pain has served as a background, against which the present syndrome has stood out more clearly with the passage of time. Of the thirty-eight patients, twenty-two were females and sixteen males. The ages at which the syndrome manifested itself were between 12 and 65 years. In the past history two facts stand out: the high incidence of rheumatic infections and tonsillitis, and the frequency of psychologic disorders. In addition to the precordial pain the other symptoms were as follows: Marked lassitude was complained of in thirty cases, shortness of breath of a not very pronounced degree occurred in twenty-nine cases, orthopnea was found in seven cases, palpitation was complained of by twenty-nine patients, giddiness was a symptom in twenty-seven cases, faintness, without loss of consciousness, in seven, and thirteen patients gave a history of fainting. Twenty-nine patients complained of a sense of left-sided constriction. Dyspepsia was present in fourteen cases and in several appeared to be a predisposing or trigger symptom, for successful treatment of the dyspepsia generally led to considerable diminution in the severity of the cardiac pain. In no case, however, could it be said that the dyspepsia by itself was the cause of the cardiac pain. In thirty-three of thirty-eight cases the pain was felt on the left side of the chest, either over the apex of the heart or higher over the precordium. The pain of angina of effort is characteristic, and a careful history will in all cases differentiate the condition from angina innocens. If pain is complained of as occurring only during exertion, if it is related to exertion and never arises at rest or at night, it may be taken that the patient is not suffering from angina innocens but from angina of effort. The syncopal type of angina innocens may suggest an epileptic attack with a visceral aura. The onset, however, is less abrupt than that of epilepsy. Convulsions do not occur. There is no incontinence of urine. The course of the disease is unlike that of epilepsy, for there is no progressive increase in the severity of the symptoms. The patients generally show steady, if slow, improvement. It is difficult to understand how the pain of angina innocens is produced. There is quite obviously no coronary disease. The severe spasmodic type of attack may just possibly be associated with some temporary coronary spasm, but of this there is as yet no evidence. An overactive central nervous system, due to psychologic or endocrine factors, may be a contributing cause. A final factor, the mechanism of which still remains obscure, is the known association between chronic infection and "irritable heart."

Journal of Physiology, London

89: 113-238 (March 5) 1937

- Effect of Alternating Currents on Cochlea. G. V. Gersuni and A. A. Volokhov.—p. 113.
Further Analysis of Action of Alternating Currents on Auditory Apparatus. A. A. Arapova, G. V. Gersuni and A. A. Volokhov.—p. 122.
Impedance Changes in Muscle During Contraction, and Their Possible Relation to Chemical Processes. M. Dubuisson.—p. 132.
*Effects on Human Electrocardiogram of Introduction of Calcium and Potassium into Blood. I. Harris and D. A. Levin.—p. 153.
Effects of Respiration on Circulation Through Liver, as Studied by Means of X-Ray Cinematography. K. J. Franklin and R. Janker.—p. 160.
Action of Eserine and Related Compounds and of Acetylcholine on Central Nervous System. A. Schweitzer and S. Wright.—p. 165.
Influence of Temperature on Isolated Kidney of Dog. R. G. Bickford and F. R. Winton.—p. 198.
Action Potentials of Normal Mammalian Muscle: Effects of Acetylcholine and Eserine. G. L. Brown.—p. 220.

Effects on Electrocardiogram of Calcium and Potassium Introduced into Blood.—Harris and Levin have attempted to ascertain the effects produced on the human electrocardiogram by alterations in the concentration of the bases normally present in the blood. The method employed consists in administering intravenously various bases to individuals and taking electrocardiograms and blood samples before and after such administration. Various calcium preparations were used for intravenous injections. The quantities of calcium in the blood serum were determined by the technic described by Clark and Collip in 1925. Intravenous injections of various quantities of a 5 per cent solution of potassium chloride were used in all the experiments. The quantities of potassium in the blood serum were determined by the method of Kramer and Tisdall. The authors did not succeed in raising to any pronounced extent the serum sodium by injection of sodium chloride. A rise in blood magnesium of from 2.8 to 5.2 mg. per hundred cubic centimeters did not affect the electrocardiogram in any particular way. When calcium or potassium salts are introduced into the blood stream of human subjects, the heart rate is definitely reduced, and this reduction may persist for a considerable time. No definite correlation could be found between the magnitude of the changes in the electrocardiogram and the concentration of calcium or potassium in the blood serum.

Lancet, London

1: 793-850 (April 3) 1937

- Cancer Tests and Treatments. P. N. Pantoni.—p. 793.
Studies in Serum Treatment of Lobar Pneumonia. G. J. Langley, W. Mackay and L. Stent.—p. 795.
*Ancylostoma Anemia. M. M. Fikri and P. Ghalioungui.—p. 800.
Labor Complicated by Thrombosis of Mesentery: Resection of Ten Feet of Small Bowel—Patient Alive and in Good Health Twenty-Four Years Later. G. G. Turner.—p. 802.
Clinical Diagnosis of Polyarteritis Nodosa: Report of Four Recent Cases. A. W. D. Leishman.—p. 803.
Cystic Degeneration of Chorionic Villi in the Sixth Decade. C. Hollósi.—p. 808.
Repeated Perforation of Peptic Ulcer with Subsequent Treatment. A. C. Lysaght and W. B. Williams.—p. 809.

Ancylostoma Anemia.—Fikri and Ghalioungui investigated the dextrose tolerance of eighteen cases of pure ancylostoma infestation. In twelve there was some abnormality in the extent of the hyperglycemic response, its duration or its fall. In nine of these, two or more defects were associated. The blood sugar curves after intravenous injection of dextrose were determined in eight cases. They were normal and did not correspond to the respective oral responses. Interference with absorption caused in some way by the presence of the ancylostoma worms and by their bites in the duodenum is presented as a possible explanation.

Quart. Bull., Health Org., League of Nations, Geneva

5: 747-1126 (Dec.) 1936

- Public Health and Social Problems in the United States of America. Report by the Participants on Study-Tour Arranged by the Health Organisation of the League of Nations and the United States Public Health Service.—p. 747.
Health Indexes: Study of Objective Indexes of Health in Relation to Environment and Sanitation. K. Stouman and I. S. Falk.—p. 901.
Cooperation in Health Matters, Between the National Government of the Republic of China and the League of Nations. A. Stampar and His Missions to China.—p. 1082.

Bul. et Mém. de la Soc. Méd. des Hôpitaux de Paris

53: 478-516 (April 26) 1937. Partial Index

- *Gross Vesicular Emphysema of Lungs Simulating Congenital Pulmonary Cysts. M. Brulé, P. Hillemand, J. Delarue and R. Gaube.—p. 478.
- Pulmonary Air Cysts: Stathographic or Tomographic Technic; Three Cases. F. Meersseman, P. Buffé, P. Durand and L. Gallouin.—p. 487.
- Suppurated Air Cysts. J. Cathala and Brincourt.—p. 490.
- Pulmonary Cysts and Bronchiectasis. J. Comby.—p. 492.
- Air Cysts in Early Infancy. L. Ribadeau-Dumas.—p. 495.
- Multiple Subpleural Air Cysts Following Obstruction of Air Passages in Child, Aged 7 Years, with Hereditary Syphilis. E. Apert.—p. 499.
- *Pulmonary Cysts in Adults and Their Meaning. P. Ameuille and C. Rendu.—p. 500.

Pulmonary Cysts in Adults.—Ameuille and Rendu believe that air cysts of the lungs may be congenital as well as acquired. Many infants with congenital cysts die young. In those who survive, the cyst becomes larger with increasing age. This is the reason why pediatricians see mostly congenital cysts and internists treating aged persons say that cysts of adults are acquired. There are naturally also differences in structure distinguishing them from normal air cavities or from hydatid or dermoid cysts. Difficulties in diagnosis arise when air cysts are the seat of inflammatory processes. Roentgenologic examinations cannot differentiate between ordinary cavities and cysts, even with the use of opaque substances, which do not always penetrate through the bronchi. Some authors have even mistaken cysts for a pneumothorax, and Vallebona had little success with his "stathographic" roentgenograms. Air cysts are not seen in middle aged persons. Unilocular cysts are of mediocre size, but all around them there may be found large emphysematous vesicles which become smaller as their distance from the central cyst increases. To give them a valid interpretation, it is necessary to know to which vascular system of the lungs they belong and what relation they have with other lesions.

Presse Médicale, Paris

45: 625-640 (April 24) 1937

- *Splenectomy in Chauffard-Still's Syndrome. M. Loeper, A. Lemaire and J. Patel.—p. 625.
- Ulcer of Posterior Aspect of Stomach and Its Roentgenologic Diagnosis. R. Ledoux-Lebard and J. Garcia-Calderon.—p. 628.
- Roentgenologic Examination of Lungs in Prone Posture. R. Benda, H. Mollard and C. Debray.—p. 631.
- Clinical Manifestations and Roentgenologic Signs of Lumbo-Aortic Adenopathies in Cancer of Genital Glands. R. Leibovici and J. Hepp.—p. 635.

Splenectomy in Chauffard-Still's Syndrome.—Loeper and his associates describe a case of polyarthritis with enlarged spleen and lymph nodes and increased temperature, which in the beginning was temporarily relieved by salicylates. The recurrence resisted all medication, and splenectomy was decided on. After a transfusion of 300 cc., a curvilinear incision was made on the left side of the abdomen just above the umbilicus. The spleen was found to be firm and adherent. The splenic vessels were ligated close to the hilus at the edge of the pancreas, and a few isolated vessels were attended to. Then the spleen was taken out and the gastrosplenic omentum sutured. Microscopic examination showed that the sinuses of the spleen were devoid of cellular elements in the midst of a hyperplastic reticulum. Their endothelial lining had proliferated, showing numerous karyokinesis; some foci of degeneration seemed to be due to hyaline transformation of vessels. The postoperative improvement of the patient was rapidly progressive, functional impairments disappeared and the joints became freer in their movements. Five weeks after the operation there was a sudden onset of bilateral bronchopneumonia, from which the patient died. This splenectomy for Chauffard's polyarthritis is, according to the authors, the third of its kind mentioned in the literature. Both preceding cases were rewarded with permanently favorable results.

Giornale di Clinica Medica, Parma

15: 243-326 (April 10) 1937

- Renal Insufficiency in Course of Amyloidosis of Kidney: Cases. B. Davolio-Marani.—p. 243.
- *Fragility of Capillaries in Pulmonary Tuberculosis: Modifications by Action of Vitamin C. G. Borsalino.—p. 273.

Fragility of Capillaries in Pulmonary Tuberculosis.—Borsalino made determinations of the resistance of the capillaries in 140 patients suffering from pulmonary tuberculosis, with and without hemoptysis. The determinations were made

before and after administration of an intravenous injection of 100 mg. of cevitic acid. Patients with grave hemoptysis as well as those suffering from intestinal complications or a cachectic condition were excluded. The resistance of the capillaries is almost normal in patients who do not have a tendency to suffer from hemoptysis. In hemoptoic patients it is low. In both instances the resistance of the capillaries increases immediately after administration of cevitic acid. The increase progresses for the first twelve hours after the injection. Then it diminishes slowly, and about twenty-four hours after the injection it is the same as it was before. Cevitic acid also proved to have a favorable symptomatic action by which the general condition and appetite of patients improved and the fever and quantity of sputum were favorably modified. The anatomic condition of the lungs, however, remained unchanged. In cases of actual hemoptysis the latter stopped but frequently reappeared when the cevitic acid treatment was discontinued.

Archivos de Pediatría del Uruguay, Montevideo

8: 137-208 (March) 1937. Partial Index

- *Ether Enemas in Whooping Cough. N. Leone Bloise and E. Alvariza Perez.—p. 137.
- Infantile Thyroid Pathology in Uruguay. M. A. Jaureguy.—p. 147.
- Abdominal Lymphogranulomatosis in Child: Case. E. G. Caselli.—p. 158.
- Baryta Enema in Acute Intussusception in Infants. A. Rodriguez Castro, J. Vizziano Pizzi and J. A. Soto.—p. 170.
- Twisted Ectopic Testicle in Infant: Case. J. Vizziano Pizzi.—p. 179.

Ether Enemas in Whooping Cough.—The treatment advised by Leone Bloise and Alvariza Perez consists in daily enemas of a solution prepared according to the following formula: 20 cc. of a 10 per cent solution of camphor in ether, 30 Gm. of eucalyptol and 100 cc. of a 4 per cent solution of aromatized oil in liquid petrolatum. The enema is given through a No. 14 or 16 Nelaton catheter introduced 15 cm. into the rectum. The dose for each enema is 5 cc. for infants, 10 cc. for children from 2 to 8 years of age and 15 cc. for older children. The treatment consists of eight enemas (one a day) and in grave cases, fifteen. The authors conclude that the ether enemas favorably modify the evolution of whooping cough and prevent the development of complications, especially of the respiratory tract. The number of attacks and duration of the disease are greatly diminished. The technic for administration of the enemas is easy and they may be given at home by the mother. Infants and children have complete tolerance to the treatment, which can be given with specific vaccines (freshly prepared) or with antispasmodic drugs, such as belladonna, for instance. Satisfactory results from the treatment were attained by the authors in 80 per cent of the cases in a group of eighty children who received the treatment.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

10: 273-404 (March) 1937. Partial Index

- *Symptomatic Improvement of Emphysema from Pneumoperitoneum. R.-A. Piaggio-Blanco, R.-O. Piaggio-Blanco and R.-A. Caimi.—p. 273.
- Thyroid-Hypophysis Syndrome: Case. J.-M. Cerviño, J.-C. Barsantini and A. Bertolini.—p. 284.
- Enteritis with Salmonellas in Infants: Cases. J. Lorenzo and Deal.—p. 295.
- Vicarious Hormone Therapy in Sterility of Ovariopathic Origin: Case. A. Stabile.—p. 321.
- Volvulus of Stomach: Cases. C. Nario and J.-P. Otero.—p. 341.

Symptomatic Improvement of Emphysema from Pneumoperitoneum.—Piaggio-Blanco and his collaborators advise performing pneumoperitoneum, with repeated administration of large amounts of oxygen (2 liters at a time), in the treatment of grave emphysema associated with chronic bronchitis and asthmatic crises. After the treatment dyspnea diminishes, expectoration is more easy than before, the vital capacity increases and the patient can rest in the dorsal decubitus and feels greatly relieved. The improvement caused by the treatment is due to the elevation of the diaphragm with consequent restoration of its functions and regulation of the intra-abdominal pressure. During emphysema the equilibrium of intrapleural and intra-abdominal pressures is disturbed. The latter is negative. Pneumoperitoneum controls the disequilibrium and brings intra-abdominal pressure from negative to positive. Two cases are reported.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

143:113-216 (April 1) 1937. Partial Index

- *Question of Specificity of Serologic Tests for Tuberculosis. H. Gerhartz.—p. 113.
Question of Tuberculous Etiology of Multiple Sclerosis. H. Ahringmann.—p. 133.
Changes in Spinal Cord in Cases of Polyneuritis. F. Accornero.—p. 137.
*Aspects of Pseudobulbar Paralysis (Striopontine Form) in Younger Persons. L. Bini.—p. 158.
Meningoradiculoneuritis (Guillain-Barré) and Meningomyelo-Encephalitis Considered as Diseases in Which Pathologic Agent Has Primary Point of Attack in Meningeal Space. A. Biemond.—p. 172.
Neuropsychiatric Aspects of Cranial Hyperostoses. I. Somogyi and R. Bak.—p. 199.

Specificity of Serologic Tests for Tuberculosis.—

Gerhartz demonstrates that the complement fixation reactions, which employ specific antigens obtained either from the pathogenic organism or from the tuberculous tissue, have proved specific in the animal experiment as well as in the clinical application. In the presence of tuberculosis, they are as a rule positive. If they are positive in the absence of tuberculosis, other organs may be tuberculous. They demonstrate biologic tuberculous activity, which is not necessarily identical with clinical activity. In case of negativity, the tuberculous tests should be repeated and, since different tests do not always produce identical results, several should be made on the same patient. Analysis of the cases in which positive tuberculous complement fixation reactions were obtained revealed that the reactions are positive not only in pulmonary and extrapulmonary tuberculosis but also in a number of other disorders, such as iritis, ulcer of the cornea, nonsyphilitic keratitis, hemorrhage and turbidity of the vitreous humor, retinal hemorrhage, neuritis of the optic nerve, Ménière's disease, angiospastic processes, lupus, polyserositis, multiple sclerosis and amyotrophic lateral sclerosis. The author says that it is not justified to designate a positive reaction as nonspecific merely because no typical tuberculous tissue changes can be found, for there are factors which suggest that these disorders might be of a tuberculous nature. He reaches the conclusion that the serologic tests for tuberculosis are a valuable aid in the differential diagnosis of tuberculosis and in the detection of hidden tuberculosis. However, for the estimation of the activity of the tuberculous process or for the prognosis, they are of slight value.

Aspects of Pseudobulbar Paralysis in Younger Persons.—Bini points out that the literature reports cases in which foci in the basal ganglions caused pseudobulbar paralytic manifestations. After citing some of these, he shows that most of these cases have in common a lesion on the external surface of the putamen, which partly involves the external capsule and the claustrum. The nucleus caudatus is less often involved. Occasionally the process spreads to the thalamus and in rare cases also to the internal capsule. However, the characteristic aspects of these cases are the foci on the external surface of the putamen. These foci may produce the symptoms of pseudobulbar paralysis, even if the process on the putamen does not involve the capsule, the thalamus or the nucleus caudatus. It is also noteworthy that rigidity predominates in these cases and that they are related to the arteriosclerotic muscular rigidity described by Förster. In the majority of cases, including those observed by the author, there exist severe degrees of calcification of the vessels so that the trophic factor plays a part in the genesis of the symptoms. A second group of cases of pseudobulbar paralysis concerns pontile foci and they are usually of an arteriosclerotic nature. The author says that among the most interesting cases of pseudobulbar paralysis are those in which the basal ganglions or only the corpus striatum are involved. It has been suggested by some that in these cases it is not so much paralysis as dystonia and Parkinson-like symptoms which predominate. To such cases, however, the term pseudobulbar paralysis could not properly be applied. Nevertheless, the older as well as the more recent literature reports cases in which the paralytic symptoms predominate over the striopallidal symptoms. Thus the question arises whether the striatum, in addition to its action on the tonus, may not also influence the motility. The author gives his attention to this question on the basis of two case reports concerning men aged 45 and 44 respectively. In the discussion of these cases he points out that there is no reason to assume that the striatum in addition to a tonic has also a motor function, for in the

majority of cases of pseudobulbar paralysis in which the striatum showed a lesion other parts of the brain were also involved, such as the pons in one of his cases. The pontile involvement seems to indicate that in such cases the striatum exerts only a modifying, not a determining, influence.

Folia Haematologica, Leipzig

57:1-160 (No. 1). 1937. Partial Index

- Qualitative Behavior of Blood Platelets in Pernicious Anemia. J. Arneth.—p. 1.
*Significance of Salivary Glands for Pathogenesis of Pernicious Anemia. T. Tempka.—p. 30.
Changes in Blood Picture in Acute Glomerular Nephritides. E. Filo.—p. 39.
Interpretation of Nature of Hodgkin's Disease: E. M. Medlar, J. H. Hornbaker and W. H. Ordway.—p. 52.
Hypophysis and Hematopoiesis. O. O. Meyer, Gertrude E. Stewart, Ethel W. Thewlis and H. P. Rusch.—p. 99.
*Polycythemia Vera Ending in Agranulocytosis and Thrombocytopenia. H. Schnetz.—p. 110.

Salivary Glands and Pernicious Anemia.—Because perhaps other portions of the digestive tract, besides the stomach and the intestine, might play a part in the pathogenesis of pernicious anemia, Tempka gave his attention to the salivary glands. He describes his observations on a patient with pernicious anemia, in whom he resorted to the oral administration of saliva from normal persons. Over a period of seventy days, 20.33 liters of saliva was administered. A tabular report indicates the gradual improvement of the blood status and of the weight under the influence of the administration of saliva and also the renewed impairment of the blood status when administration of the saliva was interrupted for a while. The typical reticulocytic crisis developed on the sixth day of the treatment with saliva; that is, at about the same time it occurs in hepatogastrotherapy. The time of appearance of the reticulocytic crisis and several other factors indicate that the improvement which took place during the administration of saliva was not a spontaneous remission. In summarizing his observations the author says that the oral administration of normal saliva effects remission in a typical case of pernicious anemia. He cites several questions concerning the saliva therapy which require further investigation.

Polycythemia Vera Ending in Agranulocytosis.—Schnetz describes his observations on the involvement of the white blood picture in polycythemia. One case, which is described in detail, reveals (1) the typical symptoms of a polycythemia vera that could be traced back for five years and (2) the clinical aspects and the course of an acute (aleukemic) myelosis or agranulocytosis, respectively. As regards the symptom of polycythemia, which becomes manifest in a predisposition to thrombosis, this case is of interest because of a new localization. A thrombocytopenia pulmonalis was observed which, if watched for, might be found to occur with considerable frequency in such cases, the more so since some of the symptoms of polycythemia (attacks of cyanosis, dyspnea and so on) are identical with those of sclerosis of the pulmonary arteries (A. Posselt). In the literature to which they had access, the authors found no other case of polycythemia vera with such a severe leukopenic, agranulocytic reaction as in the first case described in this report. In a second case with typical symptoms of polycythemia there developed a phlegmon of the hand and a mild agranulocytic reaction. The latter subsided again, together with the phlegmonous process, apparently in response to the administration of vitamins C and A.

Klinische Wochenschrift, Berlin

16:553-584 (April 17) 1937. Partial Index

- Problem of Gaucher's Disease. M. Zehnder.—p. 553.
Quantitative Determination of Citramic Acid in Blood Serum. H. Lund and H. Lieck.—p. 555.
*Mistakes in Evaluation of Sternal Puncture. A. von Domarus.—p. 557.
*Criticism of Sternal Puncture. K. Helpap.—p. 558.
Clinical Aspects of Hepatopathias During Childhood. S. Wolff.—p. 560.
Fluorine in Treatment of Hyperthyroidism Inclusive of Exophthalmic Goiter. W. May.—p. 562.
*Effect of Autohemotherapy on Agranulocytosis and Its Mode of Action. T. Sakurai.—p. 564.

Mistakes in Evaluation of Sternal Puncture.—Von Domarus emphasizes the necessity of recognizing the limits of the diagnostic use of the sternal puncture. He describes two cases which demonstrate that the result of the sternal puncture

may be misleading. In the first case the sternal puncture erroneously indicated a good regenerative capacity of the bone marrow, when the patient had an aplastic anemia or a myelophthisis, which terminated in death. The second case took a favorable course, although the two sternal punctures indicated a defective regeneration capacity of the bone marrow. On the basis of these cases, the author warns against an overestimation of the diagnostic value of sternal puncture.

Criticism of Sternal Puncture.—Hespap points out that the diagnostic use of the sternal puncture presupposes two factors: (1) that the sternal marrow is homogeneous in its cellular structure and (2) that there is a parallelism between the condition of the sternal marrow and the marrow of the other bones. After reviewing the scant literature about these two questions, the author reports his own studies on the sternal marrow of thirty-two cadavers, in none of which had there been a disease of the blood. Only twenty-two of the examined sternums had a homogeneous red marrow. In eight cases the sternal marrow was nonhomogeneous in that the cells from three distinct sites of puncture were different. In order to obtain information about larger portions of the bone marrow, the marrow of both femurs was examined in twenty-four of the cases. These observations prove that in one and the same patient the marrow in the long bones and in the sternum is not necessarily of a uniform character. The bone marrow apparently is not a homogeneous organ like the blood, and the diagnostic value of a sample of marrow taken at random should not be overestimated.

Autohemotherapy in Agranulocytosis.—In citing several case histories, Sakurai demonstrates that the severe as well as the mild forms of agranulocytosis, which occasionally develop after treatment with arsphenamine, can be counteracted by the injection of the patient's own blood. The author withdraws from 10 to 20 cc. of blood from the vein of the patient's arm and injects it immediately into the gluteal muscle. To avoid coagulation of the blood, the syringe is first moistened with citrate solution. The site of injection is massaged. The blood is injected every day or every second day until four or five injections in all have been given. The case histories indicate that the first injection effects a reduction in fever. The author suggests that the agranulocytosis after treatment with arsphenamine is a drug anaphylaxis. He also discusses the mode of action of autohemotherapy.

Medizinische Klinik, Berlin

33: 593-624 (April 30) 1937. Partial Index

- Eye Injuries Caused by Foreign Bodies. W. Stock.—p. 593.
- *Prontosil in Brucella Abortus Infection. W. Berger and H. Schnetz.—p. 594.
- Romberg's Phenomena in Blind Persons. H. Urban.—p. 595.
- *Nystagmus in Tumors of Thoracic Portion of Spinal Medulla. H. Hoff and O. Pözl.—p. 598.
- Congenital and Acquired Conditions of Feeble-mindedness. H. Stefan.—p. 602.
- Cardiac Neurosis. G. Tidow.—p. 605.

Chemotherapy in Brucella Abortus Infection.—In view of the favorable effects that had been obtained with prontosil in various infections, Berger and Schnetz decided to try this form of chemotherapy also in Brucella abortus infection. They report the clinical history of a man, aged 35, in whom the Brucella abortus infection did not respond satisfactorily to treatment with neoarsphenamine. After the neoarsphenamine treatment was discontinued, the patient was given daily three tablets of prontosil and three times each week an intramuscular injection of an ampule of prontosil. The response to this treatment was so favorable that the authors felt justified in reporting this case, realizing of course that a single case does not permit generalizing conclusions about the value of a treatment. They think that the prontosil should be tried in other cases of Brucella abortus infection.

Nystagmus in Tumors of Thoracic Portion of Spinal Medulla.—Hoff and Pözl observed spontaneous nystagmus in three out of six patients with tumors in the thoracic region of the spinal medulla. They admit that because of the small number of cases the figures are of no significance, but they think that the characteristics of the nystagmus which appears in these cases deserve attention. They observed that it has a slow and a rapid component. The rapid component is in the direction of the visual movements; it is entirely horizontal and appears

especially when the patient is standing, sitting or in the abdominal or dorsal positions. Turning the pelvis or rotating the legs arrests the nystagmus. These seem to be the only movements that cause cessation of the nystagmus. To be sure, in one case the completion of the lateral position was necessary to arrest it. After the surgical removal of the tumor from the thoracic portion of the spinal medulla, the nystagmus disappeared completely or only slight traces of it remained. As long as the nystagmus was at the peak of its development, pelvic movements toward either side and both lateral positions had the same effect, in spite of the fact that in the first two cases the spastic and parietic conditions were not equally severe on the two sides. In evaluating the significance of the described observations, the authors point out that they indicate the need of a careful examination of the nystagmus that develops in case of spinal tumor. Even if a spontaneous nystagmus is absent, it is advisable to subject these patients to the same examinations in order to determine whether some change in the position might not perhaps elicit a latent nystagmus. The differential diagnostic significance of this type of nystagmus is slight, because it occurs also in rare cases of multiple sclerosis; but it should be impressed on the nonspecialist in this field that the existence of a nystagmus does not necessarily speak either against a tumor of the thoracic spinal cord or for a multiple sclerosis.

Strahlentherapie, Berlin

58: 373-494 (March 20) 1937. Partial Index

- Fractional and Protracted-Fractional Irradiation. H. R. Schinz.—p. 373.
- Ray Treatment and Sensitivity to Rays of Tumors and Tumor-like Hyperplasias of Reticulo-Endothelial System. F. Windholz.—p. 406.
- Artificial Pneumonia and Its Irradiation: Experimental Contribution to Action of Roentgen Rays on Inflamed Tissue. C. Fried.—p. 430.
- *Changes in Pancreas Following Roentgen Irradiation. J. Seino.—p. 449.
- Cell Permeability and Action of Rays. F. Ellinger.—p. 464.
- Can Radium and Roentgen Rays Cause Impairment of Generative Function of Women? C. Weysser.—p. 470.

Changes in Pancreas Following Roentgen Irradiation.—Seino made experimental studies on the hypertrophy of the islands of Langerhans and its relationship to the assimilation of sugar. He produced hypertrophy of the islands in rabbits by partial extirpation of the pancreas, by ligation of a part of the organ, by chronic starvation, by roentgen irradiation or by the combination of the two latter methods. Later the animals were subjected to oral and intravenous sugar tolerance tests. In the rabbits that had been subjected to partial extirpation or ligation of the pancreas, the assimilation of sugar proved to be greatly impaired; but in those in which the pancreas had been subjected to roentgen irradiation there was no noticeable deviation in the assimilation of sugar, in spite of the fact that the irradiation with the large dose of roentgen rays had produced atrophy or complete destruction of the pancreatic parenchyma. The islands of Langerhans showed no hypertrophy following roentgen irradiation, but there was a compensatory new formation of islands. A rabbit that had been subjected to chronic starvation showed hypertrophy of the islands of Langerhans but no hypoglycemia. He never observed hypoglycemia in connection with hypertrophy of the islands. Roentgen irradiation severely impaired the rabbit pancreas, but the effect of this impairment on the assimilation of sugar is less severe than in case of extirpation or ligation of a part of the pancreas. The irradiation was followed by hypoglycemia, but this had no connection with the condition of the islands of Langerhans.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

100: 417-546 (April 14) 1937. Partial Index

- *Do Cutaneous Temperatures Differ in Men and Women and Is There a Difference Between Day and Night Temperature? O. Scheurer and H. Zimmermann.—p. 417.
- Mode of Action of Prontosil. W. Hoffmann.—p. 427.
- Central Action of Ephedrine and Ephedrine. H. Killian and K. Kuhlmann.—p. 432.
- Phosphatase in Blood Plasma in Persons with Malignant Tumor. H. Lubenstein.—p. 456.
- Physiology of Basal Ganglions. A. Leimdörfer.—p. 447.
- *Inhibition and Activation of Serum Phosphatase in Carcinoma. H. Baumert.—p. 468.

Cutaneous Temperatures During Day and Night.—Scheurer and Zimmermann report their observations on fifty-eight men and women who were free from fever. Over 10,000

temperature measurements were made in all. Whereas the rectal temperature remained practically constant, the graph recordings of the cutaneous temperatures revealed small and large indentations. The fluctuations in the cutaneous temperatures are not dependent on the changes in pulse frequency. Moreover, the cutaneous temperature takes its course independent of the body temperature; it is always lower than the body temperature. Persons, whose cutaneous temperature was measured on the same day in the same room, with few exceptions gave identical curves of the cutaneous temperature. The same persons tested on different days showed a different course of the curves. A comparison of the cutaneous temperatures of men and women showed that during the day the cutaneous temperature of men is approximately 0.8 degree C. (1.4 degree F.) higher than that of women. During the night the cutaneous temperature of men decreases, whereas it seems to remain constant or increase slightly in women.

Serum Phosphatase in Carcinoma.—Baumert studied the modification of the serum phosphatase by activating and inhibiting substances in noncancerous and in cancerous patients. He describes activation experiments with magnesium chloride and inhibition experiments with calcium ions, sodium fluoride and so on. He thinks that, although the demonstrated activation and inhibition of the phosphatase of the carcinoma serum seems to indicate that this is characteristic for carcinoma serums, the behavior of the carcinoma serum in other respects does not support the unequivocal or diagnostic estimation of these aspects. An increase in the phosphatase values develops not only in carcinoma but also in obstructive jaundice, uremia with secondary contracted kidney and septic conditions. Moreover, other authors have observed it in degenerative bone disease and in tuberculosis. On the other hand, there were relatively low values in carcinoma of the upper respiratory and digestive tracts. Since in most cases the phosphatase values increase together with the progressive metastasization, it may be assumed that the high phosphatase values are the manifestation of a cytolytic process. In this connection the author calls attention to a parallelism between the phosphatase values and the cholesterol content in the serum. An increase in the cholesterol content is observed in obstetric jaundice, uremia, severe diabetes and carcinoma, and it is considered the result of cell impairing processes, in that the cholesterol which is liberated in cell disintegration enters the blood. A similar cause may be assumed also for the increase in phosphatase, particularly since phosphatase concerns chiefly the anaerobic metabolism, which is characteristic for carcinoma with its inadequate oxygen supply.

Zeitschrift für klinische Medizin, Berlin

132: 1-152 (April 7) 1937. Partial Index

- *Clinical Significance of Prolonged QT Interval (Duration of Systole) in Electrocardiogram. R. Hegglin and M. Holzmann.—p. 1.
- *Behavior of Respiratory Quotient in Hyperfunction of Thyroid. H. W. Bansi and A. Wolter.—p. 33.
- *Histidine Treatment of Hemophilia. H. Kohl.—p. 40.
- Mineral and Biliary Constituents of Duodenal Juice in Hepatic and Other Disorders. H. Minibek.—p. 55.
- Dysostosis Cleidocranialis: Three Cases. W. Pilgerstorfer.—p. 108.
- Late Gangrene After Electrical Injuries. H. Schnetz.—p. 120.

Prolonged QT Interval in Electrocardiogram.—Hegglin and Holzmann describe their investigations of 700 normal electrocardiograms. They observed a lengthening of the systole regularly in case of hypocalcemic conditions such as tetany, hepatic coma and uremia, but as the calcium content of the serum increases again it is reversible. Under toxic influences and metabolic and endocrine disturbances, the lengthening of the QT interval signifies a grave condition but the prognosis is not entirely unfavorable. In case of hypertrophic hearts in patients with hypertension and in the early and late stages of cardiac infarct, a slight prolongation of the QT interval is relatively frequent as the manifestation of a longer lasting stimulation in the pathologically changed portion of the heart. The lengthening of the QT interval, which occurs in pulmonary embolism and in collapse-like and comatose conditions, remains unexplained as regards its mechanism and significance. As can be seen from the ST-T portion of the electrocardiogram, in hypocalcemia the total process of excitation is abnormally prolonged, whereas in the other groups with QT lengthening it is chiefly the retrogressive phase that is abnor-

mally long. The authors conclude that the lengthening of the systole in the electrocardiogram occurs in various disorders. It may be a harmless accompanying symptom for instance of hypocalcemia, but also the manifestation of a severe impairment of the myocardial function.

Respiratory Quotient in Hyperfunction of Thyroid.—Bansi and Wolter say that the relation of carbon dioxide elimination to the intake of oxygen is dependent chiefly on the coordination of the combustion processes in the organism. After citing the respiratory quotient of the different basic foodstuffs (carbohydrates, fats, proteins) they state that in normal persons who take a mixed diet the respiratory quotient is usually around 0.85. An abnormal height of the respiratory quotient, that is, an increase to over 1, is observed in case of forced feeding with carbohydrates, when as the result of the transformation of carbohydrates into fats an excess of carbon dioxide is eliminated by the expiration. During starvation, on the other hand, the respiratory quotient often decreases to less than 0.7. However, the respiratory quotient is influenced not only by the food intake but also by other factors, such as the voluntary increase in the ventilation, observable during metabolic tests on frightened persons. In taking up the question of the respiratory quotient in patients with exophthalmic goiter, the authors point out that the scanty literature on this problem indicates that surprisingly often it is low. They decided to determine the respiratory quotient of patients with exophthalmic goiter and with other hyperthyroid conditions in their large material (225 cases). They observed a noticeable dependence of the respiratory quotient on the increased basal metabolic rate. The fact that with the increasing severity of the case the respiratory quotient is reduced almost to the level of the pure fat combustion indicates that the thyrotoxicosis severely taxes the carbohydrate metabolism and the carbohydrate stores of the organism. If, as the result of treatment of the hyperthyroidism, the basal metabolic rate decreases, there is nearly always a corresponding increase in the respiratory quotient up to normal values.

Histidine Treatment of Hemophilia.—Kohl observed that the enteral and parenteral administration of histidine considerably shortens coagulation (reaction time). This reduction was most noticeable in the sphere of the capillaries. Histidine also effected a noticeable reduction in the reaction time of the hemolyzed venous blood. It was possible to produce a greater and more lasting reduction of the reaction time by a combination of histidine with calcium and vitamin C. In three cases of true hemophilia, the reaction time of the capillary blood could be reduced or normalized by means of the oral administration of histidine, at least for the duration of the treatment, which may be carried out at intervals of from one to two days. The course of hemophilia is most favorably influenced by combining the permanent histidine treatment with the administration of calcium and vitamin C. One hemophilic patient, who was treated with histidine for a whole year, showed a considerable lessening in the hemorrhagic tendency. This hemophilic patient, who in the years from 1929 to 1935 had been confined to bed on account of articular hemorrhages for an average of 121 days annually, during 1936 when he received histidine treatment required only ten days of rest in bed on account of articular hemorrhages, which occurred during the intervals between the treatments. The two other hemophilic patients up to the time of this report had received a combination treatment with histidine, calcium and vitamin C for periods of six and eight weeks, respectively; during this time they had no serious hemorrhages.

Wiener klinische Wochenschrift, Vienna

50: 427-458 (April 2) 1937. Partial Index

- Surgery of Diseases of Peripheral Vessels. W. Denk.—p. 427.
- Echolics and Their Modern Application. T. Antoine.—p. 431.
- Contribution to Pathogenesis of Hereditary Syphilis. G. Engerth and C. Palisa.—p. 436.
- *Biologic Action of Androgen Intensified by Estrogen. H. Kun and O. Peczenik.—p. 439.
- Newer Results in Sphere of Vaccination and Preparation of Vaccine. M. Kaiser.—p. 441.
- *Truly Allergic Articular Diseases. E. Maliwa.—p. 443.
- Male Sex Hormone and Estrogenic Hormone.**—Kun and Peczenik developed a modification of the so-called electrical ejaculation test, which enabled them to determine the

potency of androgens. They first determine the sexual potency of the animals by means of electrical stimulation, which elicits ejaculation in all normally developed male animals. Following castration, however, the electrical stimulation has this effect only after the animal has been treated with androgen. By means of this test the authors determined the marginal doses of various androgens and compared them with the doses that are required if they are given in combination with a constant quantity of estrogen (600 international benzoate units). They found that the addition of estrogen definitely reinforces the effect of androgen.

True Allergic Joint Diseases.—Aside from the allergic-hyperergic mechanism, which is assumed to play a part in the pathogenesis of chronic infectious arthritis, Maliwa directs attention to a small group of chronic articular changes for which a special pathogenesis must be assumed. He reports the clinical histories of two cases which represent two types of this special form of articular changes. In summarizing the characteristics of these two types he says that following allergic cutaneous or intestinal disorders first fleeting and later permanent articular swellings develop. These swellings are usually extremely painful. Even after they have existed for several years, the roentgenogram reveals no bone change, with the exception of an occasional moderate decalcification. There is usually no fever even in times of sudden exacerbations of the articular disorder. The sedimentation speed of the blood is never accelerated and may even be slightly retarded. The author stresses the importance of the differentiation of this process from chronic infectious arthritis. Exacerbations occur in both forms, but in the allergic form they are extremely sudden and occur often over night and without fever. A dietetic indiscretion may have preceded. The absence of allergic cutaneous changes does not indicate the absence of an allergic cause, for allergy may become manifest in diverse forms. In discussing the pathogenesis of the allergic articular disorders, the author suggests that an insufficiency in the fermentative decomposition of foods may play a part. He found the administration of a substance that inhibits histamine formation of therapeutic value.

50: 459-490 (April 9) 1937. Partial Index

- Occurrence of Tularemia in Austria (Epidemiology and Diagnosis). H. David.—p. 459.
Ophthalmologic Aspects of Tularemia. F. A. Hamburger.—p. 462.
Distribution of Poliomyelitis in Europe During Last Ten Years. J. Zappert.—p. 463.
Therapy of Disorders of Peripheral Vessels. K. Hitzenger.—p. 465.
Question of Disturbance in Internal Gas Exchange. O. Klein.—p. 467.
*Agranulocytosis and Arsphenamine. H. Möschl.—p. 472.

Agranulocytosis and Arsphenamine.—Möschl points out that agranulocytosis has been observed repeatedly following antisyphilitic treatment with arsphenamine, but the combination with bismuth has often been regarded as the offensive factor in these cases. Cases in which arsphenamine exerted a therapeutic effect on an already existing agranulocytosis are relatively rare. Such a case is reported in this paper. Since a Plaut-Vincent angina seemed to be the cause of the agranulocytosis, it was decided to administer a dose of neoarsphenamine. Following this, the tonsillar membranes were cast off, the fever subsided and the blood picture improved. Since the sternal puncture revealed a normal bone marrow, it may be assumed that the excretion of the granulocytic elements from the bone marrow was blocked and not that the bone marrow had been impaired. The sternal puncture is an important diagnostic factor in such cases. In those that are similar to the reported one and whenever the sternal puncture reveals a well functioning bone marrow, a therapeutic attempt with arsphenamine seems advisable. In cases of impaired bone marrow the administration of arsphenamine does not seem desirable, although the question should be taken into consideration whether perhaps the arsphenamine would counteract the infectious process. The reported case is noteworthy also with regard to the relationship between aminopyrine and agranulocytosis. The patient had been given twice 0.3 Gm. of aminopyrine, but it is doubtful that such small doses would elicit agranulocytosis, especially since there were no signs of an allergy to aminopyrine.

Hospitalstidende, Copenhagen

80: 397-424 (April 13) 1937

- *Occurrence of Myelocytes in Normal Human Thymus and Relation This Observation to Theories of Genesis of Blood Cells. A. Bertelsen.—p. 397.

Bandaging in Fracture of Clavicle. E. Madsen.—p. 419.

Myelocytes in Normal Human Thymus.—Bertelsen states that promyelocytes, myelocytes and leukocytes were found in not inconsiderable quantities in the thymus in all cases examined in fetuses in the last third of pregnancy, in the new-born, children and in adults. The myelocytes divide and all stages up to leukocytes were seen. The number, the immature myelocyte forms and the preponderance of eosinophil types testify strongly against a vasogenic and for a local origin. In fetuses and children there were often in the interlobar septums large non-granulated mononuclear cells, from which many of the myelocytes established in this age group are assumed to develop. In adults this cell type was encountered only occasionally and in small numbers, but in the parenchyma large nongranulated cells were seen in direct relation to promyelocytes and myelocytes. The cells are believed to originate from the small lymphocytes and to be the most important mother cells for myelocytes. In spite of the frequent occurrence of "trachychromatic" myelocytes, direct granulation is not considered probable, since transition forms are lacking and since this myelocyte type occurs also in nonlymphatic tissue. Myelocyte formation from the thymus reticulum was not demonstrated.

Ugeskrift for Læger, Copenhagen

99: 383-404 (April 8) 1937

- Diathermy Treatment of Lupus. H. Haxthausen.—p. 383.

*Investigations on Reliability of Friedman Test as a Test for Pregnancy. B. Heiberg.—p. 387.

Friedman Test for Pregnancy.—Through questionnaire addressed to attending physicians on the relation between the Friedman test and the clinical results with regard to pregnancy, Heiberg ascertained that there was complete agreement between the clinical diagnosis and the reaction in 98 per cent of 957 reactions, uncertain diagnosis in about 1 per cent and erroneous reaction in about 1 per cent. In the four erroneous positive reactions the differential diagnosis was between pregnancy and the climacterium; three of the five erroneous negative reactions were in women in the middle of pregnancy. The author says that in abortion and missed abortion the reaction may be negative or positive, depending on the functionality of the retained chorion tissue. In no case in this material was the diagnosis of extra-uterine pregnancy maintained in the face of a negative Friedman reaction, but according to earlier statistics the reaction is often negative in extra-uterine pregnancy.

99: 427-452 (April 22) 1937

- *Galactosemia and Galactosuria in Acute Hepatic Diseases. N. I. Nissen.—p. 427.

Hypercholesterolemia in Castrated Men. G. Teilum.—p. 437.

Is Solution of Posterior Pituitary Misused? S. Horneman.—p. 440.

Galactosemia and Galactosuria in Hepatic Diseases.—Nissen reports the course of galactose tolerance in twenty-three patients with acute diffuse parenchymatous hepatitis. He states that galactose can always be established in the blood, also in normal persons, even when galactose is not eliminated. The galactose elimination in the blood therefore has to exceed a certain threshold before sugar can be demonstrated in the urine by the usual reduction methods. The blood galactose curve in hepatitis increases mainly in height, not in length. Elimination can vary greatly in hepatitis with the same loading of the kidneys, and as a rule it reaches its height corresponding to the acme of the parenchymal disturbance, showing that, parallel with the hepatic disorder, changes occur in the mechanism of galactose elimination. This explains the earlier failure to establish an agreement between the blood sugar values and the elimination after administration of galactose in hepatitis, and also that measurement of the galactose elimination as by Bauer's test must be a more reliable measure of the liver function than determination of the concentration of the blood galactose.

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The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "ab," abstracts; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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Am.—American
A.—Association
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
Internat.—International S.—Surgical
M.—Medical
Med.—Medicine
Nat.—National
Phar.—Pharmaceutical
Phys.—Physicians
Rev.—Revision
Ry.—Railway
Soc.—Society
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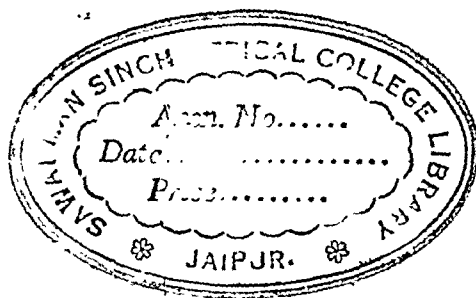
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345—434	5.....	Jan. 30	931—1016	12.....	March 20	1585—1678	19.....	May 8	2087—2172	25.....	June 19
435—516	6.....	Feb. 6	1017—1144	13.....	March 27	1679—1760	20.....	May 15	2173—2320	26.....	June 26
517—606	7.....	Feb. 13	1145—1226	14.....	April 3						

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